





# F A C T S

WHICH PROVE THE IMMEDIATE NECESSITY  
FOR THE ENACTMENT OF

## SANITARY MEASURES,

TO REMOVE THOSE CAUSES

WHICH AT PRESENT INCREASE MOST FEARFULLY THE  
BILLS OF MORTALITY, AND SERIOUSLY AFFECT

## THE HEALTH OF TOWNS.

BY

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IMPORTANT DISEASES, MEDICAL AND SURGICAL," AND OF "FACTS  
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UNITY OF OUR SPECIES,"  
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ETC., ETC., ETC.

"The annual slaughter in England and Wales from preventible causes of Typhus, which attacks persons in the vigour of life, appears to be double the amount of what was suffered by the allied armies at the battle of Waterloo."—SANITARY REPORT FROM THE POOR LAW COMMISSIONERS.

"Devouring pestilence hangs in our air."—SHAKSPEARE.

L O N D O N :

L O N G M A N ,    B R O W N ,    A N D    C O .

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## P R E F A C E .

The following observations were originally written with the intention of publishing them in the pages of "The Lancet," and some part of the Manuscript was actually in the hands of the printer of that all-powerful Journal, when the Author was induced at the suggestion of some influential friends, who take a deep interest in the subject discussed, to publish them in a separate form, in order that they might be brought more extensively before that portion of the public who do not generally peruse Medical Works.

In common with other labourers, seeking to promote the happiness and prosperity of all classes of the community, more especially the poor, by removing the causes which contribute to create those diseases which add so fearfully to the mortality at present existing amongst the inhabitants of the crowded lanes and courts of many of our towns, the Author most fervently hopes the attention of the public only requires to be more generally directed to them, to secure their most cordial co-operation with a willing government, most anxious to provide the means for sweeping away those nuisances.

*Grove Street, East Retford,*

*January, 1847.*



THE CAUSES WHICH INCREASE THE BILLS OF  
MORTALITY, AND SERIOUSLY AFFECT THE HEALTH  
OF TOWNS.

“ ————— Exempta juvat spinis e pluribus una.”

WE live on the eve of great and important changes; the ding of party warfare resounds no longer in the legislative assembly of our country; those great political measures which have so long occupied almost exclusively the attention of our senators are now the law of the land, and the “rulers of the people” have now time to direct their attention to the social wants and requirements of the community. With all our boasted knowledge the star of civilization is still clouded, and the art of government is in its cradle; and yet the womb of the future is pregnant with much that is good; public attention has been, and is about to be more closely than ever, directed to the sources of fever—to the means by which the filth of our cities and villages may be removed, and the frightful ravages of syphilis controlled. Then, and then only may we hope that the value of life will be increased, and increased it most assuredly must be, by the removal of those heaps of filth—those noisome open drains—the whole paraphernalia of pestilence which is daily exhibited around the dwellings of the poor; and, lastly by the removal of all places of interment beyond the walls of towns. When such sanitary measures as these are enacted by parliament, we may congratulate ourselves on the important fact that at last the great wants of the people are attended to. It is by measures such as these that the Ministry will “*stand between the living and the dead and bid the plague to cease.*”

We have been led to make the above remarks from the unusually large number of cases of *Gastric Fever* which have come under our own care, or the care of some of our professional friends, during the months of last July, August, September, and October; and from our own experience we venture to state that the great majority of the cases of fever we have seen, during a somewhat

extensive practice both in London and the country, may be traced to a neglect of the proper sanitary measures for clearing away those nuisances, which are the prolific nurseries of pestilence and parents of death. Near one of the houses in which the first case of fever broke out, is an open drain, into which several soughs carrying offensive and putrid matters arising from animal and vegetable bodies in a state of partial decay, ran. So offensive was the effluvia arising from it, [and it ought here to be remarked that from the peculiar nature of the ground there was no outfall for the water, which was suffered to remain until partly dried up by the sun] that we called once or twice at the door of the house and cautioned the occupier of the danger he and his family exposed themselves to. No notice was taken by the good easy man. To his house we were first called to see his son, a youth of nineteen; this case was a very severe one; he recovered; a young girl, his sister, was next attacked slightly; the mother was the next victim; she died: another child, aged five, was then attacked most severely and recovered; this child altogether lost the power of speech for some weeks, and even now it has not perfectly returned to him. Crossing the road, in another house a young woman was attacked with the same fever and died; [this case was not under our care] and in the same house we afterwards attended a little boy and an old man, who both suffered most severely; and another case occurred within twenty yards of it. Going down a narrow lane, about 120 yards in a direct line from the house first mentioned, we attended an old man and his wife, both suffering from the same fever; and fifty yards along the same lane, in a house surrounded by heaps of filth another case of the same fever came under our immediate care. This fever was not however confined to the houses of the poor. In the same village the house-keeper of the clergyman of the parish was attacked, and she told us she had been in frequent communication with the houses in which the fever was raging. In a house in another parish we attended the mother and four children all suffering in different degrees from Gastric Fever, and on going into this house, the smell arising from imperfect drainage was so great, that an unpleasant odour was communicated to the nose, which remained for a considerable period afterwards.



Some years ago a fever of a similar nature occurred in a populous village, most fearful in its nature, and fatal in its results, the victims being principally children, although some adults also died. At the request of the worthy Rector of the village, (who is also a Rural Dean for that part of Nottinghamshire) we visited many of the houses in which the fever was raging, and directed our attention to the best means of preventing its spreading in that place. On enquiry it was found that many of the cases had first occurred up a narrow lane, at the end of which are a few miserable dwellings. In front of them was a large open drain which remains to this day; and between the house and this sewer, a distance of only a few yards, were dung heaps, and every possible abomination: passing from this place up the village we noticed on either side of the long street an open and narrow drain, into which at about every twenty yards a sough from the pig-stye, fold-yard, or privy, or *the three combined*, emptied itself. The weather was remarkably hot, much rain had fallen for some weeks previously, and the stench was intolerable as we walked along the street. All this was pointed out to him; he said "it was too true; he had often tried to alter it but could not," and he appeared fully convinced until the law empowered some public officer of health to enforce the necessary sanitary regulations this state of things would continue. By his personal influence the drains were partially cleaned out, but the fever continued many months in the place; and even now occasionally breaks out; is this to be wondered at when the seeds of it are still present—still thickly sown?

But it is not to villages that we must look for the sources of fever. We must look for them in some of the narrow streets of London and our larger cities. We have often walked in Loudon, along the great highway, when carriage after carriage conveying the young, the fair, the beautiful—the aristocracy of this great and wealthy nation has been passing—we have seen her Majesty, then a fair and beautiful girl, knowing nothing of the anxieties of the parent, or the pressure of the cares of state, also pass rapidly by in her carriage. We have turned down a few yards only from that highway—from that stream of wealth and fashion—through a narrow archway to perform our professional duties, and have entered the house of disease, of poverty, of death; and breathed

an atmosphere pregnant with the causes which are productive of the most fatal diseases. These houses are unknown save to the medical man, the parish surgeon, the missionary of the Home Society, or the collector of the pence men pay for living—or rather dying, in these fearful abodes. But these sources of fever, these causes of death, though unknown to the rich and great; nevertheless exist. Rooms never cleaned—walls never purified by the white-wash brush—floors the nature of which are hid by layers of dirt, the accumulation of years—dens never lightened by the beams of the sun—surrounded by heaps of decomposing animal and vegetable remains—and yet into such places, families consisting of at least ten or twelve, or more, human beings are crammed in one room, in which all the domestic duties must be performed. Men, women, and children herd together—eat, drink, sleep, wash, dress and undress before each other. It is in such places that all ideas of virtue and morality are broken down—that crime is created, brought forth, nurtured, or concealed—here the babe enters the world without a blessing, and the old man leaves it without a hope—here fever, that fever which in the end extends itself, and will extend, for whilst the evil is unchecked, it is increasing. Imagine not because the humbler classes are the first victims that the rich and noble will not, and do not, suffer in their turn; yes, it is in such places as these, the filth and disgusting odours of which are intolerable, unknown and inconceivable except by those whose duty or humanity causes them to visit them, that the fatal seeds are sown, the fruits of which are but too fearful to all classes of society. Can we wonder that in such places—places too within a few yards of those grand streets—adorned with splendid shops, and crowded with a living mass of beings blessed with all that wealth can purchase—fever and crime have been produced and will continue to be produced until the knowledge of them bears its certain fruit. When, oh when! will this great truth be universally acknowledged—when will the Government say “PREVENTION IS BETTER THAN CURE”—when will effectual means be taken to enact proper sanitary measures, and to ensure the means of the proper administration of them. We live on the eve of important changes; this is the seed time of improvement, may the harvest be to our children most fruitful and abundant!

Some writers of authority will perhaps consider that the advantages we may expect to derive from the carrying out under proper officers of efficient sanitary measures have been over estimated; but the opinion expressed has been formed after careful examination, and a most extensive experience of some years; and we will now proceed to consider the evidence on which the conclusion has been arrived at, that fever is the result of improper ventilation, improper sewerage, and the exhalations arising from the decomposed animal and vegetable remains which surround and enter the dwellings of the poor, both in towns and villages. A careful examination of the able reports of Mr. FARR, the Registrar General, will, if we mistake not, lead to the same conclusion; a conclusion moreover in strict accordance with the opinions of the most able physicians and surgeons of the past and present day—of Mr. CHADWICK, Dr. SOUTHWOOD SMITH, and the members and witnesses of the different health commissions.

A writer whose opinions are entitled to very great respect, Mr. NEISON in a recent work\*, remarks—

If, in any public enquiry, it should be attempted to ascribe the increased amount of sickness in the town districts to the less healthy nature of the districts or their peculiar local influence on health, the conclusion would be certainly fallacious," \* \* \* \* and again "whatever sanitary regulations may be carried out for promoting the health of towns, the wide distinction between the rates of sickness and mortality in particular districts will still not disappear. The poor workman inhabiting the miserable streets of our large towns and inhaling their supposed noxious vapours are actually longer lived than the affluent and upper classes whose easy circumstances enable them to inhabit, comparatively, the palaces of the kingdom" \* \* \* "if," he continues, "improvements are to be carried out, and changes are to be effected in the sanitary regulations of our large towns and cities, let them at once be carried out—not upon the necessity of such municipal innovations to avert a pestilential havoc in human life—but on the true merits of the question—the comforts, conveniences, and elevation of taste and moral purity thence arising."

We shall see shortly reasons for thinking this opinion has been formed far too hastily—that Mr. NEISON'S theory is opposed to facts, and incapable of demonstration. Without combating the

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\* Contributions to Vital Statistics, being a development of the Rates of Mortality and the Laws of Sickness from extensive data, &c. &c. by F. G. P. NEISON, Actuary to the Medical, Invalid, and General Life Office.

assertion that the members of the higher classes may be cut off at an early age, although they live in larger houses, are better fed, warmer clad, and exercise greater personal cleanliness than the inhabitants of the cellars in Liverpool and London, it may be asked are they not exposed to other causes tending to shorten life than the labouring classes? May not the difference in the mode of life of the peer and the peasant be such as to render all comparison between the two classes ridiculous? May not the purple and fine linen, the champagne, turtle, and high seasoned food, tend to shorten life as effectually as the pestilential odours carried to the lungs? but we shall have a better means of testing the correctness of this opinion when considering the effects produced by fever when, from whatever cause arising, it breaks out in one of those unhealthy and poisonous localities; before doing so however it is necessary to glance at the duration of life in England, and to contrast it with that of other countries; and then to compare certain localities with each other, and for this purpose, the report of the Registrar General and the able works of Mr. NEISON, Mr. WILLIS, and others are all important.

It is only of late years that these tables have been prepared with sufficient accuracy, and the careful and praiseworthy labours of Mr. FARR enable us to come at a correct conclusion or nearly so as to the relative mortality in England as compared with continental states. From the year 1838 to 1842 the average yearly mortality in the population of England was 2.209 per cent. or about one death in forty-five.—In 1842 it was 2.167 or as nearly as possible one death in forty-six. In France the mortality is now estimated at one in forty-two, in Prussia one in thirty-eight, in Austria one in thirty-three, and in Russia one in twenty-eight.

This account is so far satisfactory as proving that the mortality in this country is less than in the principal European states, and that too in the face of those influences which we venture to state without fear of contradiction have been clearly proved in certain towns very considerably to increase the rate of mortality. If we examine Mr. FARR's tables a little more closely, we find that in North Wales, Devonshire, Dorsetshire, and Sussex, the rate of mortality is only *one death in fifty-four*. We have not a right to be content by feeling that the rate of mortality is less in Eng-

land than in France or in Russia ; this only proves the greater advantages of our country and affords additional stimulants for renewed and never-tiring exertion until the worst districts, the worst parts of the most unhealthy towns are so improved by proper sanitary regulations, that the rate of mortality for the whole country shall be far less than at present found in the most favoured parts of it ; until the number of deaths amongst the inhabitants of the courts and cellars of unhealthy Liverpool shall not be greater than in the counties of Dorsetshire and Devonshire.

Referring again to the carefully prepared and elaborate tables of Mr. NEISON the expectancy of life is found greatly in favour of the agricultural labourer which he attributes solely to difference of occupation, “ *to the exclusion of the supposed contaminating influences, [“supposed contaminating influences ;” we had thought the fact too obvious to admit of doubt] of ill-ventilated houses, narrow streets, bad sewerage, poisoned air, epidemic town fevers, and factory restraints.*”

An error has been committed with regard to the condition of the cottages occupied by the agricultural labourers, which some writers seem to regard as white-washed palaces ; it is erroneous to suppose that bad sewerage, houses devoid of ventilation, impure or poisoned air, and fevers are plagues only confined to large towns. Instances of a severe form of fever, the result of bad drainage occurring in the rural districts have been given at the commencement of these remarks, and if a comparison is instituted between the sewerage of large towns and many of our villages in the country, the difference will be found that whilst in many of the former there is some attempt at sewerage, imperfect though it be, in the latter there is none at all ; both the inhabitants of towns and villages at present are exposed to the injurious effects that must soon or late arise, from breathing an atmosphere loaded with the vapours arising from excretions of all kinds ; in the village the poison is more largely diluted by fresh air than in the town, and the effects are consequently not so fearful to the animal economy. If, notwithstanding the imperfect sanitary regulations existing even in the country, the rate of mortality is there so much below that of Liverpool, what may it not be reasonably expected to become when the air is entirely freed from these unwholesome exhalations ?

Taking the tables of NEISON, published 1845, we find the result of a comparison instituted as to the relative value of life in Benefit Societies\* between the mortality of the inhabitants of rural, town, and city districts separately, and for the three combined, as follows; if we take 100,000 persons at ten years of age in England and Wales, and from among the members of benefit societies in rural, town, and city districts respectively, it is seen that while in England and Wales half that number have died between 62 and 63 years of age; in rural districts the equation takes place from 68 to 69—in town districts between 64 and 65, and in city districts between 61 and 62. If then a comparison is to be made between the kingdom at large and the agricultural districts, the rural parts of the country enjoy an advantage of six years—the town districts of two years, the city districts losing one year of life. *The difference in favour of the rural over the city districts being no less than seven years, an important fact worthy the most careful and attentive consideration.* These are facts known to those who have paid any attention to the sanitary condition of the people, but of which, we fear, the great majority are even to the present day altogether ignorant. By a careful examination of

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\* Our limits prevent an examination of the pitiable condition of benefit societies, a subject to which the attention of the government has been, and doubtless must be again directed. From the elaborate calculations of Mr. NEISON, there are strong reasons for concluding that the poor laborer after, amid toil and privation week after week paying to these so called benefit societies in the hope of thereby providing means for his support in sickness or old age, may be doomed to disappointment. Mr. NEISON says truly, that “considering the immense number of those societies that have broken down, it is lamentable to think that so little has been done to ascertain the real nature and extent of the risks to which they are subject. An immense number of societies were formed, and their contributions regulated by the most delusive and inadequate data. \*\* at the very moment when assistance is required he discovers that the society has been formed on a ruinous plan, that the increasing years and infirmities of its members have absorbed all its funds, and that those surviving must be thrown destitute on the parish or a public charity.” It is wonderful that so many facilities should have been given for the formation of these societies, and so little pains taken to provide the foundation on which they might have been securely erected, and have proved mines of wealth to their members in the winter of life instead of sources of mourning and disappointment.

the Sanitary Report, published by the Poor Law Commissioners in 1842, (and for the labours of Mr. CHADWICK, we cannot be sufficiently grateful,) the reader will discover that the ravages caused by preventible diseases are fearful in the extreme; the deaths during one year in England and Wales by epidemic, endemic, and contagious diseases, including fevers, typhus, and scarlatina, amounted to 56,461. “*It may be said,*” writes Mr. CHADWICK, “*that the effect is as if the county of Westmoreland now containing 56,461 souls, or the whole county of Huntingdon, or any other equivalent district were entirely depopulated annually, and occupied only by the growth of a new and feeble population living under the fears of a similar visitation.*” From the same report it is clearly proved also, that the annual slaughter of persons in the vigour of life from preventible causes of typhus is about double the loss sustained by the allied armies at Waterloo.

The great mortality of city and town districts over the rural has already been noticed; are the public generally aware of the causes tending to promote this mortality; or is this knowledge possessed only by the medical profession, the Poor Law Commissioners, the Health of Towns Association, and those members of the legislature who have made the subject their especial study? The facts are so startling and so appalling that when proclaimed throughout the land they must compel the nation to a man to cry loudly for the removal of the causes through which the mortality of the country is so fearfully increased; for such an object the public funds should be given most ungrudgingly; no effort should be spared to deliver us from “the pestilence that walketh in darkness”—from “the destruction that wasteth at noon day.” It is now about seventeen years since the cholera visited our shores—in what state did that fearful scourge find us? It made its appearance amid filth and misery, poisonous effluvia of every kind, amongst the accumulations of the most disgraceful negligence, amongst every possible food by which its progress could be promoted. The fear of death was then at the fireside of every man—and what ought to have been done effectually years before, was done, or rather attempted at that moment; sewers were partly cleansed, heaps of filth carted away, houses whitewashed, chloride of lime sprinkled about. But let us ask have we been provident;

has that fatal scourge taught us to be wise in time, have we traced those evils to their foundation and rendered the recurrence of them again impossible? Alas, no!—we hear of this fearful disease again journeying towards us; we know not the day or the hour that may not find it again depopulating our cities, and yet from personal observation, I venture to affirm without fear of contradiction, that the cholera visiting this country at this moment would find us as unprepared as before, as utterly destitute of sanitary regulations—yes, in the back streets of our towns and our cities—in many of our villages too—amid their filth and misery the inhabitants are left as so many baits to invite the presence of fever and cholera, from such localities fever is never absent, and this reminds us to remark that typhus consequently becomes more dangerous and fatal in its effects even than the plague or cholera, from its permanence. Now amongst the many points on which medical men are found to differ, there is one axiom no member of the profession ventures to dispute, viz—that in narrow streets in which a crowded squalid wretched population exist, inhabiting neglected and badly ventilated dwellings, surrounded by filth and abominable odours of every possible kind, there most assuredly will fever exist and carry off its victims; and it is worthy of remark also that the inhabitants of such localities are always enfeebled, always physically incapable of resisting the effects of any disease, at any rate much less so than those living in the country. The history of the plague which the great fire banished from the metropolis by burning down the dwellings in which the pestilence had so long found a resting place and congenial home; the observations of Clot Bey and Aubert prove how the plague is increased, if not created by locality, and the same fact is admitted respecting the cholera. Are these facts, we once more ask, generally known to the public? If known it is difficult to conceive why the love of life and fear of death inherent in every human being have not roused men to exertion, to an earnest effort to provide the means of preventing so great an evil.

That these evils exist has been shewn already; a few additional facts drawn from various sources will render them still more evident; and it will be found not in one district only but in all—in every part of England, Ireland, and Scotland, where the poor are



congregated together, for the reports tell the same unvarying tale—all tell of the wretched condition of the poor as regards ventilation, cleanliness, drainage, and the requisites necessary to the smallest possible degree of comfort—there will disease and death be found. In the introduction to these remarks the condition of some of the back streets of London were described—a recent visit during the past year proved to me they were in much the same condition. What is the state of Windsor? Can it for a moment be denied that the abode of Royalty, the Palace of the Queen, of the future Heir to the Crown of this Kingdom is surrounded by streets where fever exists triumphant, luxuriating in the midst of filthy and stinking drains, over-populated houses, and a bad supply of water?

In Birmingham where there is a better drainage and careful building we have the authority of that celebrated surgeon, Mr. HODSON, for stating that comparatively few cases of fever occur. If we turn from Birmingham to Liverpool we shall find a far greater rate of mortality from fever. Can we wonder at it when by far the greater number of the houses in which the labouring classes live are without any sewers at all; about 36,000 or 40,000 of them live in 8,000 cellars, 2,988 of which are reported by the surveyors as damp and wet, and nearly one third of the whole or about 2,666 are placed five or six feet below the level of the street. That death here reigns triumphant is not to be wondered at, that the whole of such habitations do not become one monster charnel house on the breaking out of some epidemic (and when is fever absent?) excites our surprise—that tens of thousands of our fellow men have so long been permitted to dwell in these living tombs is indeed lamentable. Thanks to the exertion of the Health of Towns Association this evil will not much longer exist without some attempt to remove it. Travelling from Liverpool to Glasgow we come to the metropolis of filth, and here too the prevalence of typhus is well known to every physician and surgeon. Dr. ARNOT in the Report of the Poor Law Commissioners thus describes the wretched abodes he visited:—

“ There were no privies or drains there, and the dung heaps received all the filth which the swarm of wretched inhabitants could give; and we learned that a considerable part of the rent of the houses was paid by the produce of

the dung heaps. Thus worse off than wild animals, many of which withdraw to a distance and conceal their odour, the dwellers in these courts had converted their shame into a kind of money by which their lodging was to be paid. The interiors of these houses and their inmates corresponded with the exteriors. We saw half dressed wretches crowded together to be warmed; and in one bed, although in the middle of the day, several women were imprisoned under a blanket, because as many others who had on their backs all the articles of dress that belonged to the party were then out of doors in the streets."

The reader investigating for the first time, the sanitary condition of his countrymen, may fancy that he has at length reached the climax of wretchedness; he will find however that unhappy Ireland is even in a worse state than Scotland. Turning to the work of Mr. WILLIS published in 1845, the district of St. Michan, Dublin, is thus described. The fearful picture is here given, as drawn by Mr. WILLIS himself.\*

"There are no gentry within the district, and the few professional men or mercantile traders, whom interest may still compel to keep their offices here, have their residences in some more favored localities. This parish, that within the last thirty years might boast of as large a proportion of professional and mercantile wealth as any in the metropolis, is now the refuge of reduced persons from other districts; and very many of the houses then occupied by respectable traders, are now in the possession of a class of men called 'house jobbers,' who re-let them to poor tenants. These jobbers have no interest in the houses save their weekly rent; the houses therefore undergo no repair; the staircases, passages, &c., are all in a state of filth; the yards in the rear are so many depots of putrid animal and vegetable matter; and if a necessary be in any of them, it frequently is a source of further nuisance. The courts and back places are, if possible, still worse, and are quite unfit for the residence of human beings. They are almost all closed up at each end, and communicating with the street by a long narrow passage, usually the hall of the first house, and not more than three or three and a half feet wide. Pipe-water, lime-washing, dust-bin, privy—these are things almost unknown. The stench and disgusting filth of these places are inconceivable, unless to those whose harrowing duty obliges them to witness such scenes of wretchedness. In some rooms in these situations it is not an unfrequent occurrence to see above a dozen human beings crowded into a space not fifteen feet square. Within this space the food of these wretched

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\* Facts connected with the Social and Sanitary Condition of the Working Classes in the city of Dublin &c., by THOMAS WILLIS.

[At 30 years of age the expectation of life for Liverpool is 27 years (taking the whole population), for Glasgow little more than 24. The expectation of life in Dublin taking the labouring class only at 30 is 24 years. Each house in the parish of St. Michan contains on an average  $16\frac{1}{4}$  persons.]

beings, such as it is, must be prepared ; within this space they must eat and drink ; men, women, and children must strip, dress, sleep. In cases of illness the calls of nature must be relieved ; and when death releases one of the inmates, the corpse must of necessity remain for days within the room. Let it not be supposed that I have selected some solitary spot for this description : no, I am speaking of an entire district, and state facts incontrovertible. I indulge in no theories as to the causes which produce this state of things, but I may state the results. They are—that every cause that can contribute to generate contagion exists here in full vigour, and that disease, in every aggravated form, with all its train of desolating misery, is rarely absent.”\*

Another prolific source by which fever is created and spread exists in every market town in the country. We allude to common lodging-houses for tramps. We were once summoned late at night to one of these places in Retford, to see a young girl, suffering from a severe form of low fever, which had continued for some days. We found her at the end of a long room, upon the floor of which were numerous beds, and in which were sleeping indiscriminately men, women, and children. The narrow passage between the beds upon the floor, was nearly blocked up with the filthy clothes that had been hastily thrown off ; packages of various sizes were also throwing about, and the stench arising from an atmosphere loaded with the fumes of matches, clothes, smelling of tobacco, ale, spirits, perspiration, and the breath of the unfortunate beings thus huddled together in a close and heated room,

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\* The condition of Ireland at the moment this work is passing through the press, (January, 1847) is most deplorable. We add this note to what we had before written and which we extract from that most correct source of information “The Times,” which remarks, “Fever is rapidly extending its ravages even in the metropolis.” The Cork Street Hospital, one of the largest establishments of its kind in Ireland is “literally crammed with patients” to such a degree of inconvenience indeed that the government have given directions to have temporary buildings, if sheds or tents can be so called, prepared for the reception of the numerous patients for whom there is no accommodation within doors. The Rev. CHARLES CAULFIELD writing from Creagh Rectory states “the fever hospital built for 40 has now 136 inmates. I passed through it on Wednesday, and saw three or four in the same bed—some very ill, some recovering. The deaths in November were 83, in December (to the morning of the 28th) 135—218 in two months. In Skibbereen, on the windmill, the body of a man lay for several days beside his child, sick of fever, there being no one to remove it until the dispensary doctor had it buried, when it was becoming putrid ; this has occurred more than once. This day in a glen, in a wild part of this parish, I was told that a family was ill of fever. I went to the cabin and found 13 persons ill in the house ; five lying on some dirty straw in one corner, men and women, and five in another room in a kind of bed. Two children were up, recovering, and one girl the only person to hand them a drink of water. They had no food, not even a drop of milk, nor even an individual to let the priest know that they were dying.”

requires to be experienced in some similar dwelling in order to form any adequate notion of it.\*

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\* The evidence of Doctor LYNCH before a coroner's inquest on the body of a man who died Jan. 1847, in a common lodging house at 26, Field Lane, shows the present condition of these places in the metropolis. The Doctor said that on entering the room "he found a very offensive smell of animal exhalations as if there had been several persons sleeping in the same apartment; on looking round the room he saw quite sufficient to account for the death. The room could not give under any circumstances healthful accommodation to any one person much less to four who had been sleeping in the same apartments." Dr. LYNCH clearly proved that the man had died from sleeping in an apartment destitute of the means of proper ventilation, and gave a fearful account of the wretched lodging-houses in the vicinity of Smithfield and Shoe Lane. In Glasgow, lodging-houses have been placed on a better footing and properly licensed. In Retford there are nine lodging houses. From a paper before us furnished at our request by the police it appears they are in the most filthy condition possible; the number of travellers nightly varies from 8 to 42 in each; the police-constables state that some are found sleeping on bedsteads, some on beds placed upon the floor, men, women, children, married and single, all sleeping together in rooms the stench of which, said the constable, "makes me feel badly every time I go into them."

Mr. PIERCY the surveyor, whose report we have given in another part of the work says, from his own observation that common lodging houses would be more appropriately described as pest houses. They are the receptacles of filth, disease, and crime. Here, alike, all "herd together; the prostitute, the thief, the idle, the desolate, the filthy, and the unfortunate; irrespective of age or sex, here are nightly collected together an indescribable mass of human beings having no common object in view, but that of preying upon the industry, the credulity, and generosity of the commonwealth, whose morals they contaminate, and whose health they are continually jeopardizing. In these receptacles are to be found diseases of every kind, including fever, the venereal, the itch, as well as lice, bugs, and filth of every description. I have visited several of those tolerated nuisances both by twilight and during the hours of darkness, and must confess my inability to afford any really adequate description of them. In the evening some are smoking, some cooking, some making matches, others using resin, whilst many of them are gambling at cards. If you enter one of the bed-rooms an hour or two after bed-time, the sight begets description, and the smell sets language at defiance to depict it. I have seen them huddled together twenty, thirty, and even forty in a room, indiscriminate of sex or age; the stench of a night-room can only be exceeded by a common sewer; previous to a fair, in one house in Retford I once counted seventy." [The description given by

It may belong to the investigation of the causes tending to deprave the morals of the humbler classes, rather than to the question more immediately under discussion, to consider the awfully depraved and callous state of feeling possessed by the men and women thus sleeping together in one room; surrounded too by children; children destined to follow the same course of sin and depravity. But the connection between the two is closer than appears on a hasty consideration of the matter, and it is quite impossible not to reflect with horror on the miserable fate of those unhappy children, thus left to all the worst possible sources of contamination that surround mankind—what must be the inevitable fate of children left without shield or protection from the cradle to the grave?

“ Where shall his hope find rest—No mother’s care  
Protects his infant innocence with prayer;  
No father’s guardian hand his youth maintains  
Calls forth his virtues, or from vice restrains.”

The loss is equally great on the part of the parents who thus abandon their children; the lessons taught from the cradle can never be fully estimated. It is lamentable to contemplate the children of those operatives inhabiting the miserable abodes of our large manufacturing towns, abandoned all day by their parents when at work, neglected by the state, and but for the interference of public or private benevolence left, as far as the government of the country is concerned, without any education whatever. The term we have just written is somewhat erroneous; *there is no such thing in this world as non-education*, and never did man utter a greater truth than Archbishop Sharpe when he said “*if we do not teach those children the devil will;*” in the absence of proper instructors depravity and sin are ever active in supplying teachers—if good we plant not, vice will fill its place. Without, said a most able writer seven years ago, speaking of the independent circumstances tending to advance civilization,\* “entering at all into the question of national educa-

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this gentleman is strictly in accordance with our own experience; these night-rooms are indeed indescribable, and the beds in them neither more nor less than concentrated fever depots.]

\* Natural History of Society, by W. C. TAYLOR, Esq., L.L.D.

tion, it may be stated without offence to any party that some system of juvenile instruction and restraint is absolutely necessary in the manufacturing districts, as a simple measure of police, to supply the absence of parental control;" and if facts are required to illustrate a truth sufficiently obvious from the nature of the case, they may be found in the constabulary reports, where we learn the palm of skill, ingenuity, and hardihood, is conceded to the juvenile delinquents of Manchester by the unanimous consent of the thieves of Great Britain. We live on the eve of great and important changes—we may yet (comparatively) see our prisons almost empty—our union houses far too large for those seeking support and shelter within their walls—the beds of our fever hospitals unoccupied—and the grave deprived of many of those victims who are prematurely hurried to it.

The condition of the metropolis at this moment presents a fearful picture of that system of *laissez faire* which has so long continued the disgrace of our country; and already fearfully enfeebled the physical condition of great numbers of her once hardy sons, on the strength and vigour of whose arms we alone depend for defence in the hour of danger, on the breaking out of war with any of the states of Europe. The assertion that the physical condition of thousands of the working classes is fearfully impaired by the state of the abodes in which they live, and the deleterious influences to which they are exposed is proved from the evidence adduced in the sanitary report of the Poor Law Commissioners. We are there emphatically warned by Mr. Chadwick not to estimate the strength of a people by mere numerical calculations, a fact to which the attention of M. Mallet and M. Villerme had previously been most expressly directed; this fact is so important that it will be better to bring it before the reader in the words of the original report; if that report has been before perused by him the important information contained in this evidence cannot be too often presented to his consideration; if it has not, the sooner these facts and conclusions are more generally known the better.

“ In the evidence of recruiting officers, collected under the Factory Commission of Inquiry, it was shewn that fewer recruits of the proper strength and stature for military service are obtainable now than heretofore from Manchester.

I have been informed that of those labourers now employed in the most important manufactories, whether native or migrants to that town, the sons who are employed at the same work are generally inferior in stature to their parents. Sir James M'Grigor stated to me the fact that 'A corps levied from the agricultural districts in Wales, or the northern counties of England, will last longer than one recruited from the manufacturing towns of Birmingham and Manchester, or from near the Metropolis.' Indeed, so great and permanent is the deterioration, that out of 613 men enlisted, almost all of whom came from Birmingham, and five other neighbouring towns, only 238 were approved for service. The chances of life of the labouring classes of Spitalfields are amongst the lowest that I have met with, and there it was observed of the weavers, though not originally a large race, that they have become still more diminutive under the noxious influences to which they are subject.

"This depressing effect of adverse sanitary circumstances on the labouring strength of the population, and on its duration, is to be viewed with the greatest concern, as it has a depressing effect on that which most distinguishes the British people, and which it were a truism to say constitutes the chief strength of the nation—the bodily strength of the individuals of the labouring class. The greater portion of the wealth of the nation is derived from the labour obtained by the application of this strength, and it is only those who have had the means, practically of comparing it with that of the population of other countries, who are aware how far the labouring population of this country is naturally distinguished above others. There is much practical evidence to show that this is not a mere illusion of national vanity, and in proof of this, I might adduce the testimony of some of the most eminent of the employers of large numbers of labourers, whose conclusions are founded on experience in directing the work of labourers from the chief countries of Europe." 186.

The testimony of every writer of experience points out the evil effects of Malaria on the general health and physical condition of the people. In this country happily, the improvements that have taken place of late years by draining and the better cultivation of the land have removed the causes of ague, which only a few years ago existed to such a frightful extent, and lead in full confidence to the hope that when evils producing fever of another kind, and other diseases, are removed, from towns and villages, the occurrence of typhus will be decreased to the same extent that ague has been. Dr. MACCULLOCH in his very able work on malaria, (p. 6.) thus speaks of the effects it produces on the physical, moral, and intellectual qualities of the body.

"There is nothing in these pernicious countries more striking to a cursory traveller, than the appearance of ague which occurs at a very early period of life.

Even the children are frequently wrinkled ; and in France, in perhaps all the worst districts, a young woman, almost even before twenty, has the aspect of fifty ; while, in men, the age of forty is equivalent to sixty in healthier countries, both in appearance and vigour ; the few who live to fifty, appearing to have arrived at the protracted term of four-score. Of personal beauty in females, there appears to be little trace at any time ; but whatever may have existed is rarely prolonged beyond seventeen. And the expression of countenance keeps pace with all else, being that of unhappiness, stupidity, and apathy ; an habitual melancholy which nothing can rouse, and an insensibility to almost every thing which operates on the feelings of mankind in general. A slow and languid speech, a similar languor in the walk, and in all the actions which indicate equally the condition of the mind, and of the body, in these wretched countries.”

Sir G. BLANE says, that the people residing at Walcheren though less subject to aguish affections than strangers, “nevertheless had an unhealthy and sickly look ;” and Dr. ELLIOTSON remarks, “in the worst valleys of Switzerland poor persons are shrivelled, young persons look old, and middle-aged persons appear in the greatest state of decrepitude.” Previous to the fire of London in 1666, ague prevailed to a considerable extent there ; at, and after this period, the metropolis became better drained, and ague diminished. Before the carrying out of these improvements the ague in London raged like a continued plague.\* Dr. ELLIOTSON saw several cases of ague in London arising from the moat around the tower ; a stupid ignorance with regard to which prevailed for a long time,—“a great accumulation of filth took place, and I continually saw patients with ague from that part of London. On enquiry I learned *that the moat was in a most filthy condition, but that the authorities would not clean it out. There was a difference of opinion as to which department it belonged to ; and some medical men (laughingly) said, that it could not be supposed they should press the subject, because it brought grist to the mill.*” I believe however, that in consequence of the representations of the profession it has been cleaned out. This is a very apt illus-

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\* Practice of Medicine p. 300. Dr. ELLIOTSON says “from 1667 to 1679, 2,000 persons died from dysentery in London arising no doubt, from the same causes which produce ague.” During the first ten years of the present century there are only four deaths from ague recorded in the bills of mortality. And when ague prevails at present, it is to be attributed to accidental causes—such as a much increased average heat.



tration of the adage, what is every one's business is no one's; had proper officers of health been appointed this nuisance could not have been suffered so long to exist in the centre of the metropolis: our friend Dr. ELLIOTSON, it is true, would not have received his fees, for "continually seeing patients with ague from that part of London," but the public would have been gainers. Facts piled on facts are daily recorded which prove, after all, that the question relating to the measures which are required to remove those causes which so fearfully diminish the duration of life ought not to be regarded as a mere matter of taxation. It is on the score of economy alone that we would for a moment ask the reader, whatever his rank or condition in life, what is the yearly sum lost to the working classes of this country, and their families, by the loss of time, arising from incapacity for labor, when suffering from preventible causes of sickness—what is the sum yearly added to the poor rates for the support of the wives and children of those poor men whilst suffering from diseases produced by causes that can be removed?! how much is paid to preserve from starvation the widows and orphans of the fathers hurried to a premature grave, by diseases arising from causes over which man has control? after all, if the sanitary question is placed before the public, (and this shall be done by facts and figures ere we conclude) on the narrow ground of economy, it will be found *the greatest national burdens we have to bear, arise from crowding together the poorer part of the population into houses altogether unfitted for the abodes of human beings; bad sewerage, and improper ventilation.*

To go into all the details of the mass of misery and human suffering existing in the metropolis at this moment would so increase the size of this work, that the one object for which it has been written, the placing the evils of the present system before all classes, in as brief a space as possible, would be defeated, and yet, from the numerous reports and the mass of evidence on this subject before us, it is difficult to know where to select the most useful for our purpose;—a few however must suffice.

#### SEWERAGE OF THE METROPOLIS.

Turning to page 55 of the report of the Commissioners, the state of the sewers in London is thus described. "The sewerage of the metropolis, though it is a frequent boast to those who have not examined its operations and effects

will be found to be a vast monument of defective administration, lavish expenditure, and extremely defective execution. In the course of the present enquiry instances have been frequently presented of fevers and deaths occasioned by the escape of gas from the sewers of streets and houses. In the evidence given before the Committee of the House of Commons, 1834, one medical witness stated, that of all cases of severe typhus that he had seen eight-tenths were either in houses of which the drains from the sewers were untrapped, or of which being trapped, were situate opposite to gully-holes; and instances were mentioned where servants sleeping in the lower rooms of houses were invariably attacked with fever."

So much for the evils of sewerage in London—let attention next be directed to the condition of some of the poor operatives employed by the larger shops; these evils have been strictly investigated, and under the head of "*Circumstances in the Internal Economy and bad Ventilation of Places of Work—Workmen's Lodging-Houses, Dwellings, and the domestic Habits, affecting the health of the Working Class,*" a fearful catalogue of the misery resulting from the present system at once presents itself.

#### CONDITION OF THE JOURNEYMEN TAILORS OF THE METROPOLIS.

Attention was drawn to this class by the number of early deaths, widowhood, and orphanage, existing amongst the tailors in London. The enquiry instituted soon brought the causes of this mortality to light. In the employ of some of the larger establishments for making clothes in town, it is not uncommon to find, in some seasons of the year, one master tailor employing from *eighty to one hundred and fifty men*; they are crowded together in work rooms—or rather dens, packed together, after the most approved black hole of Calcutta fashion, so that each man is as nearly as possible in contact with his neighbour. The men are working in these close apartments, in a half undressed state, for many hours, and the great heat of the rooms, and the absence of every thing approaching to proper ventilation, causes an atmosphere so poisonous, that new men on coming into them frequently faint away; the old hands who may truly be said to be living in a semi-state of asphyxia, require frequent stimulants of gin and ale, which are brought to them at regular periods, and thus the system, in addition to its other evils, leads to the destructive habit of dram drinking. Modern physiologists have clearly proved that the

purpose of respiration is to expose the impure blood, which has circulated through the body, and which has then acquired the peculiar characters of black or venous blood, when it has returned to the heart, to the influence of atmospheric air in the lungs. By the oxygenous portion of the air received into the lungs, this dark venous blood is converted into florid or arterial blood, which is absolutely necessary for the growth and healthy nourishment of the body, and in which state, after such exposure, it is again circulated. In man and all warm-blooded animals this process is continually going on, and is of such importance to the animal economy, that its interruption, even for a few minutes, may destroy life—this constitutes death from asphyxia. “Various are the ways,” says a writer of celebrity, Dr. ROGET,\* “in which respiration, or rather *the salutary effect of respiration* on the blood may be interrupted.” It is obvious in the first place, that since the beneficial effect in question is owing to the presence of *free oxygen, the deficiency or absence of this element*, in an uncombined state, in the air respired, must produce asphyxia. Azotic, hydrogen, or carbonic acid gases, or air too highly rarefied to maintain life, may therefore be ranked among this first class of the causes of asphyxia!

The quantity of free oxygen in such an atmosphere it is difficult to imagine, the effects of being exposed to its polluting influence are what might even without examination be set down as uncontrollable, for although habit and the peculiar powers inherent in the system, for a time enable men to resist the effects produced by continually breathing such a deleterious atmosphere, as these poor tailors are for hours exposed to daily, still no constitution, however healthy, can long remain altogether unimpaired by it; and if proof were necessary, that certain diseases depend upon locality, we find men removing from one district to another, soon or late, acquire the characteristics, both of health and disease of the new locality. The strongest and most healthy ploughman taken from the country and placed in one of those pestilence-producing workshops would soon become as weak and unhealthy as the journeyman tailor. In such a condition are the bodies of these men that

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\* Cyclopædia of Practical Medicine, p. 167.

the employers have sometimes £30 worth of light goods ruined in one summer, by perspiration alone. A man entering one of these dens at 20 would have a worse chance of life at the age of 40, supposing so improbable a thing as his reaching that period, than, had he remained in the country at the age of 50. If the workmen in the tailors' shops of London are examined, not 10 per cent. of them will be found to have passed the age of 50 years.

The returns of the Registrar General shew that 53 per cent. of those poor workmen die of diseases of the respiratory organs, in the Metropolis, and only 39 per cent. in the country. Of typhus, 5 per cent. in London, and 1 per cent. in the country. In London even including master tailors, only 12 out of every 100 reach old age, in the country about 25 out of 100 do so, and this notwithstanding the very imperfect ventilation that exists in many of the workshops in the country. It is not for a moment intended to convey unmerited censure on the master tailors, for thus exposing their workmen to the atmosphere of those unwholesome apartments; it is, we would fain hope, to be attributed to ignorance rather than design. The cause, however, exists; at this moment, hundreds of our fellow men are exposed to it—are working in rooms the atmosphere of which has hurried, and is still hurrying, many a fellow creature to a premature grave;—makes many a wife a widow, and casts destitute fatherless children innumerable, for support on the poor-rates of the country.

Another unfortunate class, the misery of which has been immortalized by poor Hood in his "Song of the Shirt," includes the milliners and dress makers, and the evil is increased by much of their work, in large shops, being performed at night, in an atmosphere, rendered unwholesome in the extreme, by the light of candles or gas.

These facts are sufficient, and a thousand others may be added if thought not so, to prove the necessity for the enactment of a clause in any sanitary measure that may become the law of the land, to insure, as far as possible, a better state of ventilation in all places, where large bodies of men are congregated together. It is a singular fact that the subject of ventilation, by some oversight, has been altogether omitted from the bill for improving the Health of Towns laid upon the table of the House of Commons by Lord

LINCOLN. It is quite impossible to estimate fully the advantages that must arise from the investigation of disease with a view, not to its cure, but to its prevention; the first and only study of the officers of health must be, how diseases may be prevented? how the causes producing them can best be removed; and it at once becomes evident, that this can only be done by the appointment of men altogether independent of local influences for their support—of men, who will turn neither to the right hand nor to the left, but tread the straight path of duty, however thorny; altogether indifferent to the remarks or censures of those who so long have fed upon those nuisances, it is the especial object of this measure to remove; with one or two more instances of the very wretched condition of London, our notice of the filth and misery of the metropolis must be concluded; if any one is sceptical as to the truth of them, a morning spent amongst a few of the abodes of wretchedness, with which it abounds, will perhaps not only convince such a one of their reality, but send him home to his wife and children at the conclusion of his labors, a wiser and a better man.

STATE OF THE HOUSES IN ST. MARTINS IN THE FIELD.

“There are some houses in my district that have from forty-five to sixty persons under one roof, of all ages; in the event of a death the body often occupies the only bed, until they raise money to pay for a coffin, which is often several days. Upon the 18th of December, 1840, J—— and her infant were brought ill with fever to her father’s room in Eagle court, which was then 10 feet square, with a small window of four panes; the infant soon died; upon the 15th of January, 1841, the grandmother was taken ill, on the 2nd of February the grandfather also; there was but one bedstead in the room; *the corpse* of the grandmother lay upon the same bed, and it was only when he became delirious, and incapable of resistance (on account of his violent objection to his own removal and that of the dead body from the room) that I ordered the removal of the body to the dead house, and him to the fever hospital—he died there; but the evil did not stop here: two children who followed their father’s body to the grave, were, the one within a week, and the other within ten days, victims of the same disease; in short five out of six died.—*Report of Mr. Leonard, Surgeon.*

The report of a Mr. WILDE, an undertaker is equally fearful, he says,—

“The other day at Lambeth the eldest child of a person died of scarlet fever; the child was four years old; it had been ill a week; then came two other children, one three years and the other sixteen months old. *When the first child*

*died there were no symptoms of illness for three days afterwards; the corpse of the eldest one was in a separate room; but the youngest child had been taken by the servant girl into this room; this child was taken ill, and died in a week. The corpse was retained in the house three weeks, at the end of which time the other child died also.'*

Another proof of the injurious effects of certain localities on the physical condition of the people arises from the fact of the impossibility of recruiting the police force from the depressed districts. "It is very rare," says Mr. CHADWICK, "that any one of the candidates from Spitalfields, Whitechapel, or the districts where the mean duration of life is low, is found to present the requisite physical qualifications for the force" which is chiefly recruited from the open districts around London, or from Norfolk and Suffolk.

#### GRAVE-YARDS WITHIN THE CITY.

The evils of permitting the burial of the dead in churches, or church-yards within the city, have so well and so ably been described by Mr. WALKER, in his work on "Church-yards," and in the reports recently published in "The Times," that it is not necessary to dwell upon them at any length. It has been proved that the effluvia arising from many of our church-yards, filled with the half decomposed bodies of the dead, placed in shallow graves, and not covered by a sufficient quantity of earth, is dreadful, and that the mischief to the inhabitants of the densely populated houses surrounding them, is increased every time a grave is dug for the reception of a fresh corpse. The recent outrage upon decency in one of these burial grounds, which is simply farmed by the owner for what it will bring, in burning the coffins, and portions of human bodies, before they had remained long in the ground, to make more room, and consequently render the concern more lucrative, must be fresh in the recollection of every one; the exposure here has had the advantage of drawing the public eye to the existence of the evil, and to the necessity of providing cemeteries beyond the walls of all towns, for the repose of the dead. In the course of six hundred years, 600,000 bodies were buried in the church-yard of St. Innocents, Paris; they were extended under ground over two acres; the soil by this vast deposition was considerably raised above the streets; the smell was most offensive; and when these remains were partially removed, and the ground

levelled during the heat of summer, the workmen were frequently asphyxiated—falling down senseless.\*

It would be very easy to multiply these facts with regard to the present fearful condition of London; those seeking for additional information may refer to the sanitary reports of the Poor Law Commissioners; of the Health of Towns Association; the Liverpool Health of Towns' Advocate, and to the admirable lectures delivered by Viscount EBRINGTON at Plymouth, and Dr. GUY, at the Russell Institution: the able articles from the pen of Dr. S. SMITH, in one of the reports alluded to, are worthy the most careful examination.

We turn in the next place to a recapitulation of the fearful effects of the evils enumerated, viz. the crowding together of the lower classes, in cellars, lanes, and narrow streets; the assembling of men and women in small badly-ventilated work-rooms; the want of proper sewerage in our towns, and the existence of those numerous nuisances which have already been pointed out. These effects will perhaps be best shewn by going even a little more into detail with our comparison between healthy and unhealthy districts—between the standard of mortality in the country and the metropolis, Liverpool, Manchester, Nottingham, and other large towns.

AVERAGE NUMBER OF DEATHS IN SOME OF OUR LARGER TOWNS,  
CALCULATED FROM THE NUMBER OF DEATHS FOR 1840, 1841 & 1842,  
DEATHS ANNUALLY IN EACH 1000 INHABITANTS.

Liverpool ...35	Manchester..32	Bristol ..... 31	Hull .....30
Leicester ...31	Preston .....29	Nottingham 28	Salford .....28
Wolverhampton28	Bolton .....28	Birmingham27	Sheffield ...27
Leeds .....27	Sunderland 27	York .....24	Halifax .....21

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\* At a meeting of the Health of Towns Association last week, Lord ASHLEY presiding, Dr. SOUTHWOOD SMITH laid before the committee the following fearful statement with regard to an epidemic fever that is at this moment raging in Minchinhampton. The town contains 800 inhabitants, is well drained, and was, until two years ago, remarkably healthy. In 1843 the old church was rebuilt, the church-yard lowered, and the bodies re-interred. The dark earth being used to manure some pasture land; 5,500 loads of it still remain in a heap near the town. In 1844 many cases of typhus fever occurred, and during the last two months there have been upwards of 150 cases; the street and rectory, both adjoining this fever mound, first suffered from the ravages of fever.

The effect of the mortality in the town over the rural districts, may be still further illustrated by a reference to the report of Mr. FARR, which shews that in country districts, where the number of inhabitants to each square mile is 199, the mortality is 1 in 52; whilst in some of the worst town districts, where there is a population to the square mile of 5,108 the mortality is 1 in 32, annually out of 1,000,000 living.

We constantly hear the inhabitants of London, Birmingham, and Manchester, admitting the excessive mortality of those places; but few are aware of the extent to which their chances of long life are lessened by a residence in them, and that too, be it remembered, by causes that may in a great measure be removed at once, and in the course of years swept away altogether. There is no better way of bringing the danger incurred home to the door of every man, than by the all powerful reasoning of figures, which speak for themselves and require no illustration. The mean duration of life in Surrey, is 45 years; in Liverpool it is only 26; and in London only 37. An inhabitant of Liverpool, as compared to one living in the county of Surrey, is therefore exposed to deleterious influences which tend to deprive him of 19 years of his life.

The Registrar General, Mr. Farr, has divided the Metropolis into three portions, each containing ten districts; the result is shown by the construction of the following table, formed from the data he has given.

HEALTHIEST DISTRICT.		MEDIUM DISTRICT.		UNHEALTHIEST DISTRICT.	
Square yards to each person.	Deaths.	Square yards to each person.	Deaths.	Square yards to each person.	Deaths.
202	1 in 49	102	1 in 41	32	1 in 36

The fact that our large towns and cities, are much more fatal to human life than country districts, requires not further illustration; but we have in the above table another fact made equally certain, that towns are not only at present unhealthy, but that the mortality increases in nearly the same proportion, that those causes exist which tend to produce diseases, having a tendency to shorten life; for if a comparison is instituted between the inhabitants of St. Giles and St. George's Bloomsbury, those living in the squares and open streets of the comparatively healthy district of St.



(George's, live on an average at least 40 years—those who drag out their miserable existence amid the filthy dwellings of St. Giles only 17 years. The loss of life is even greater in Shoreditch where it amounts to nearly 28 years. Turning from the Metropolis to other large towns, the same facts can be elicited. The evidence of the Rev. J. CLAY, of Preston, before the Health of Towns Commission, was very important, in shewing the effect of locality on the health of the inhabitants; the following table will show at a glance the conclusions he arrived at, and gives the substance of his evidence on this point.

HEALTH OF PRESTON.

Well Conditioned Streets,..... Mortality, 15 in 100.

Moderately Conditioned Streets, Mortality, 21 in 100.

Ill conditioned Streets,..... Mortality, 44 in 100.

What need have we of further evidence—what can more clearly show the effects of want of cleanliness and drainage in creating, or at any rate promoting, those diseases which cause the present great destruction of life in those places, in which these evils are found? Much additional valuable information on this head may, however, be gleaned by an inspection of the reports of the London fever hospital, and from them it will be seen, that certain portions of the Metropolis are the nursery-beds of fever—central depots from which the disease never entirely departs; less severe it is true, in some years and at some seasons of the year than others, but never altogether absent. I quote from the writings of Doctor SOUTHWOOD SMITH, and in doing so, I wish once more to bear testimony to the zeal and industry he has displayed in forwarding the sanitary movement—we owe no little obligation to his powerful pen; he says, “The districts in which fever prevails are as well known to the physicians of the fever hospitals, as their own names.”

Again, “In former years, in some localities there was not a single house in which fever had not prevailed, and in some cases not a single room in which there had not been fever.”

The work of Mr. WILLIS, before alluded to, exhibits the same state of things in the Metropolis of Ireland; only as in that portion of Dublin to which he alludes, poverty, dirt, and wretchedness, being more highly concentrated, the evil is even greater than in the worst districts of London. Accordingly the professional man

is prepared to receive the intelligenee, however awful it may be, as eorreect, when told that in one house 80 cases of fever, including relapses, oceurred in a year. That 50 persons have been received into the hospital from another in twelve months. A third house supplied the hospital with 30 patients in eight months. A fourth sent 19 of its inmates in six weeks. He continues, "The inhabitants of a house which was thrice lime washed in the space of a few weeks, were as often re-admitted to the hospital, in eonsequence of sleeping in their infeted bedding." This must have been a sad want of preeaution on the part of the publie authorities, and could not have oceurred had a proper offieer of health been appointed. It only proves the absolute necessity of extending the provisions of any sanitary enaetment to Ireland; it is no idle cry, to express most firmly and fearlessly the opinion, that even-handed justice demands it. The misery of Ireland, is a faet, too fully known to need illustration. Absenteeism, and some of its inevitable results—want of employment,—bad food,—bad drainage,—miserable dwellings—fever—death, arrest the attention everywhere; but the knowledge of evil in the end, must lead to its removal, and if by drawing publie attention more generally to the eauses of this misery in the sister kingdom, this objeet is gained, those all-powerful letters of the Times' Commissioner will not have been written in vain.

Retracing our steps, and crossing from Dublin to London, the eauses which tend to produee fever in certain distriets of the Metropolis, are thus deseribed by Dr. SOUTHWOOD SMITH:—"In every distriet in which fever returns frequently and prevails extensively, there is uniformly bad sewerage, a bad supply of water, a bad supply of scavengers, and a consequent accumulation of filth, and I have observed this to be so uniformly and generally the case that I have been accustomed to express the fact in this way—to trace down the fever distriets on a map with the map of the Commissioners of Sewers, you will find that wherever the Commissioners of Sewers have not been there fever is prevalent, and on the contrary wherever they have been there fever is comparatively absent.

#### CONDITION OF THE RURAL DISTRICTS.

It will be quite impossible to leave this part of our subject without also seriously drawing attention to the sanitary condition

of many of our market towns and villages, in the agricultural districts; hitherto the opinion has been too general that those evils so prevalent in towns are absent from the country; a more mistaken notion cannot possibly exist. In some villages, in our introduction, the ravages from fever, arising from the open ditches, stinking drains, and filthy ponds, surrounded by badly-ventilated cottages, were alluded to. This question has not yet been noticed by the Health of Towns Association; we have reasons for thinking this subject will, ere long, be taken up by them; and we are in a condition to prove to them the existence of nuisances in rural districts that are little thought of, and which might be removed at a comparatively trifling cost. We this day rode through a populous village a few miles from Retford; in the front of some farm houses for many yards was an open drain, which from time to time receives every possible kind of filth, the stench arising from which is so great as to be positively disagreeable, when passing along the high road: this nuisance has existed for years. In large towns the very magnitude of the evil must of necessity require years for its entire removal; in villages and small towns the case is not so; that the amount of preventible disease is very great here also, we are confident; and that the amount of mortality even in country districts is far greater than it ought to be, is a fact capable of the most easy demonstration. But so long as the evil is left to local supervision, so long will it continue, and the experience of the Poor Law Commissioners will bear us out, when we say it is quite impossible for the medical officers of the different Unions to perform these duties; in addition to their office, they are dependent on private practice for support; the Union is for the most part only taken by young men as an introduction to private practice, and no medical man likes to be brought into disagreeable collision with those who might eventually become, or perhaps are his best private patients; and yet the proper performance of the duties of this office might subject them to expense, or even render them liable to indictment in a court of law. It is more manifest at every step of the enquiry that these duties can only efficiently be performed by a medical officer of Health appointed by Government; one highly educated and independent of private practice, for the duties of such an office can only efficiently be performed by

one, whose whole time and energies are devoted to the service of the state, and not by a needy competitor for private practice in a circumscribed and poor locality. Out of such competition, it has been suggested by a competent authority that "the public cannot possibly derive improvement or advantage in medical art," for the lamp of science can only be fed out of extensive opportunities of knowledge and study, altogether incompatible with the struggle to make a connexion, and the daily searching for patients in poor districts. An officer of health properly qualified, whose time was altogether devoted to his duties would not only exercise an ever watchful eye over all nuisances tending to the destruction of life, but would, in addition, investigate the causes of death; and in each case see that the proper cause had been registered; for it is quite impossible the great question of prevention can be solved completely, until the causes of all deaths are accurately made known. Another important duty would be to assist the coroner in all doubtful cases, for criminals escape more frequently than is generally supposed from the post mortem examinations of the bodies of their victims, being conducted by men not generally accustomed to make such examinations, and compelled by the cares of private practice to devote less time to the examination than is absolutely necessary. The appointment of such an officer would not only tend to the discovery of crime—but must in the end lead to its prevention; for no more effectual plan could be devised to awe the criminal than the certainty that his crime would be brought to light; that the body of his victim would be examined by an officer of health, fully competent to the task, and accustomed to the employment of those tests by which poisons (a very frequent means by which murders are committed) can be detected. It is doubtless very proper to scatter about small scraps of printed paper from the board rooms of the Poor Law Guardians to inform her Majesty's subjects, what are nuisances, and that they must be removed after proper notice. But a certificate signed by two medical men appears to be required; and although medical men are not generally found deficient in philanthropy, and few men are less requited for the services they perform, it is just possible their philanthropy may not lead them to occupy their leisure hours in pointing out nuisances, and holding a consultation

over a stagnant pool or stinking sewer. Meantime the causes productive of fever continue, and death carries off its victims, it may almost be said in derision of the feeble efforts to arrest his steps. Another most important duty to be performed by the public officers of health, would be the putting in force of proper sanitary regulations that must and will soon or late be enacted for the placing some bounds on prostitution, with a view to the prevention of syphilis, which exists in this country to an extent not even guessed at by the public. It is a lamentable fact, yet nevertheless a true one, that our first correct knowledge with regard to the extent of this evil, and the way in which it can be controlled, will appear in another language, and at the expense of the French government, an officer of health from that country being now in England instituting enquiries.

The evils arising from the want of sanitary measures in large towns, having at some length been pointed out, let us turn to a very brief examination of what exists in some of the smaller towns in the agricultural districts. We need not go far for an illustration of the evil, the one in which we live will fully answer every purpose.

Wishing to arrive at as correct information as possible, after a personal examination of some of the back streets, we employed Mr. J. S. Piercy, surveyor, who is also assistant overseer, to examine some of the localities in which the poor reside, and for the truth of what he states, we can, as eye witnesses, bear testimony. Retford may be described as consisting of the parishes of East Retford, West Retford, Ordsall, South Retford, and Clarbrough the population of the whole being about 7,000. It is the capital of the Hundred of Bassetlaw, a rich and highly cultivated agricultural district, and the principal market town of a great number of parishes.

The result of Mr. Piercy's enquiries are given as nearly as possible in the words of the writer—want of space alone obliging them to be slightly abridged.

#### REPORT OF MR. J. S. PIERCY.

“I was requested by the author of this work to make an examination of the state of some of the dwellings of the poor, and am sorry to commence my report by observing that, “my office of tax-collector and assistant overseer gives me

too many and too ample opportunities of witnessing the want of cleanliness and proper ventilation inside the dwellings of the poor, the want of drainage without, and the heaps of filth of all kinds by which they are surrounded.

The cottages of the poor in this parish are decidedly of a superior character to many of those we find in country villages, being generally of brick, and tiled; but this is greatly overbalanced in the country by these stud and mud habitations generally standing alone,—at least not pent up, so that a better ventilation is secured, by a free circulation of pure air being accessible to every part of these humble looking habitations. In Retford, however, the case is far otherwise. Most of the thickly-populated parts of the parish are huddled together *in narrow passages* to which *the rays of the sun are strangers*, or erected in confined rows to which ventilation and cleanliness are unknown. Even where some of these have a little frontage, whence a trifling more light and air is secured, this is more than counter-balanced by the confined nature of the back premises, which are frequently not more than three or four yards wide, and *completed with high walls, apparently for the purpose of hiding the nuisances from the premises of more affluent neighbours*. These narrow and pent-up places contain privies, ash-houses, dung-heaps, and are in fact receptacles for every description of filth; and being without any thing approaching to proper drainage, the water filled with all kinds of filth, soon stagnates, and only heightens the climax of the noxious rest. It is true, however, these nuisances are enclosed from the sight of the surrounding inhabitants, yet the causes of disease, though unseen, are present; the seeds of sickness and death are thickly and well sown in a congenial soil; and only await the arrival of some adverse change in the atmosphere, to enable them to produce a rich harvest for the sexton and the grave, not only of those living within the immediate grasp of the pest, but every where within the range of its contagious influence.

The borough of East Retford itself contains about 650 inhabited houses, and of these, 182 are in the condition above described.

A few days ago I was particularly struck with the misery and want of cleanliness in a number of these wretched dwellings situate in different parts of the town. The first house I shall describe presented the spectacle of five children (brothers and sisters) fighting, each to obtain the largest portion of the dinner, just set out, but consisting of nothing but potatoes. Having assisted in quelling the disturbance, I ascertained that the father was in another country, and that the mother, in order to eke out a maintenance for this family, was out washing four or five days a week, leaving the family from four o'clock in the morning till six at night, to take care of itself. In the next house I entered, there sat a poor dirty emaciated looking woman, with a family of five or six children. In the corner of the narrow room the husband was making "spells;" he declared that he had not had a regular day's work for six weeks past, and that had it not been for the trifling sale of the "spells," they must have perished with hunger and cold. Another house I entered was a lodging-house. Here the stench was

awful : misery and dirt reigned predominant, and the emaciated appearances of the wife and children of the proprietor only exhibited, in a still higher degree, that the want of cleanliness was the way to a premature grave. In another house sat a deserted wife with a large family, whose earnings, by going out to wash, constituted the principal means of subsistence. Here cleanliness predominated in the interior, but the back premises were in a wretched state of filth. The woman was bathed in tears when I entered ; the cause of which I soon found was that her eldest daughter lay apparently at the point of death from fever, in one corner of the room in which they were living : she died three or four days after. The last dwelling I shall mention was not more than nine feet square, in the centre of which was a round table, surrounded by six young children, devouring a dish of potatoes and dripping : around the fireside sat the mother and another woman, one of whom was smoking, whilst in the corner, in a cradle, *lay the body of a child, just dead*. The stench here was dreadful, and I left the neighbourhood with feelings of mingled pity and regret, that so little should be known by the rich and affluent, of what is going on around them, and so little done by them towards promoting the comfort—the well-being and the cleanliness of the great bulk of our labouring population.’

Our drainage is also in a most fearful condition, for in this respect, few towns are worse off than East Retford. It is a very old town, and must at one time have existed in a swamp. Although built on the eastern bank of the Idle, the health and cleanliness of the place is not much improved by this fine stream, the town sewers (such as they are) being lower than the river. “Twenty-five years ago, the town,” says our informant, “was surrounded by large open common sewers, one of those receptacles for filth positively ran along two thirds of one of the principal streets of the town ;” even now though somewhat better of, the evil is not materially diminished.

On the breaking out of the cholera in this country, fifteen years ago, the attention of the principal inhabitants was directed to a better drainage of their property, but as the evil day wore off, so all further thoughts of proceeding with so good a work evaporated. In the same year a large open common sewer existed at the end of Sutton’s Row, which was most offensive, and it was predicted by the medical gentlemen of the town, that should this fearful scourge visit Retford, that this ill drained, ill ventilated, and densely populated place, would prove its advent. “At length the fearful reality appeared. On the 19th of July, 1832, a labourer residing in this locality was attacked and died.” During its five or six weeks

continuance in the town, there were 51 cases reported, of which 13 died, and 38 recovered. *With one or two exceptions, the malady was altogether confined to Sutton's Row.* The surveyor states also, "That the centre of Carr-hill-gate is the highest part of the town, yet in this street are houses without any drainage. The stagnant water accumulates in a kind of well until nearly full, when it is pumped up, and after passing under the floor of the dwelling-house, runs down the open channel of the public street, at least 150 yards." Another open sewer is described as extending from the gas-house to the river Idle, dividing the parishes of Retford and Clarbro'; throughout its whole course the ground is nearly upon a level, and in summer it is "nearly full of stagnant gas-water—in hot weather the stench is intolerable." Another open sewer extends from the north end of the Market-place to the river Idle, which receives in addition to the Carr-hill-gate nuisance, the greatest portion of the filth of the Market-place. "This sewer," says Mr PIERCY, "is open nearly throughout, and the waters of the Idle being above the level of the sewer, afford but a poor outlet for this perpetual drain of filth—in hot weather this drain throws out a stench that is truly awful." Indeed it does! and if addition be required to the very clear account furnished by this gentleman, it is supplied in the words of Furness, who remarks, that from such sources arises a poisonous effluvia, which

"Darts in the whirlwind—floats upon the breeze—  
 Creeps down the vales, and hangs upon the trees—  
 Strikes in a sunbeam, in the evening cool—  
 Flags on the fog, and stagnates on the pool—  
 In films ethereal, taints the vital air—  
 Steals through a pore, and creeps along a hair—  
 Invades the eye in light—the ear in sounds—  
 Kills with a touch, and at a distance wounds."

We arrive at the following conclusions from the evidence adduced, and the reasons for such conclusions shall at the same time be again briefly presented to the notice of the reader,—1st, that both in towns and rural districts there exist at this moment causes without number which shorten the duration of life; and that the whole or the greater portion of these causes are, by the enforcement of proper sanitary measures, capable of being removed—2nd, that any assertion which has been made to the effect that



the great mortality of such a town as Liverpool, for example, arises from causes independent of locality, is not in accordance with the evidence before us; for even if it is attempted to draw the conclusion that the mortality of towns arises from the unhealthy nature of the trades, of necessity there carried on, the great mortality existing amongst children in such towns, to which this argument cannot apply, prove the injurious tendency of the causes there existing, on health and life; it is quite impossible to estimate the different rates of mortality, in our larger towns, except on the ground of locality alone. The mortality amongst the young is truly awful; in these unhealthy districts, in some instances, 64 per cent. of all who die, are children under five years of age; how often even in this day is the fact recorded by the inspired writer verified, of the mother "weeping for her children, and refusing to be comforted, because they are not." The unhealthy nature of towns cannot be better shown than by re-printing the following carefully prepared statement from the Health of Towns Advocate.\*

3rd, that all medical records prove incontestibly that pestilence has always prevailed to the greatest extent amongst scenes of filth and impurity, in the narrow lanes, in which the badly-ventilated houses of the poor are situate. The plague, the worst kind of fevers, and the cholera, have always been, in a great measure, confined to such localities. An examination of the history of the cholera, during its last visit to Sunderland, clearly establishes this fact. The town of Sunderland appears to consist of three parishes,

\* PROPORTION OF DEATHS FROM THREE DISEASES IN THE WHOLE POPULATION ANNUALLY.

Diseases.	Birmingham	Leeds.	Metropolis.	Manchester.	L-pool parish
	Deaths.	Deaths.	Deaths.	Deaths.	Deaths.
Fever ... ..	1 in 917	1 in 849	1 in 690	1 in 498	1 in 407
Consumption .	1 in 207	1 in 209	1 in 246	1 in 172	1 in 166
Convulsions...	1 in 645	1 in 301	1 in 453	1 in 205	1 in 188

"It will be seen from this table, in proportion to the population, that the deaths from fever in Liverpool are double what they are in Birmingham. Half as many more die from consumption in Liverpool than London; and from convulsions three times as many children perish annually in Liverpool than in Birmingham."

	No. of Inhabitants.
Sunderland ... ..	17,060
Bishopwearmouth ... ..	14,825
Monkwearmouth, in which the disease } prevalled most excessively }	8,850
	<hr style="width: 10%; margin: 0 auto;"/> 40,735

The whole number attacked by the epidemic choleric fever, out of this population from the 26th of October, to about the 15th of January, was 534, and of these, no less than 202 perished. Dr. BROWN, in his very able paper on Cholera,\* has given us the results of a very careful examination, formed upon the evidence of the parish registers, and other correct sources of information, from which it appears, that the 202 deaths took place in the following proportions:—

In Sunderland ... ..	156
In Bishopwearmouth...	21
In Monkwearmouth ... ..	25
	<hr style="width: 10%; margin: 0 auto;"/>
Total ... ..	202

which induces this able physician to come to the conclusion, that “the danger to a population from cholera is to be estimated less from their numbers than from various circumstances in their condition, *and particularly from the proportion the labouring class bears to the rest of the community*; for the parish of Sunderland, in which the mortality was in so much higher a ratio to the population than in other parts of the town is that in which the proportion of the labouring poor is the greatest.† A remarkable example of the malarious origin of cholera, which resembled the Indian Epidemic, occurred in 1829, at a school near Clapham. A very foul drain, or cess-pool, was opened in the month of August, and its contents thrown into a garden near the school.

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\* Cyclopædia of Practical Medicine, p. 395.

† We learn from Thucydides, that before the plague of Athens—from Livy, that before the plague of Rome—and from Hodges, that before the plague in 1665, in our own country, great crowds were collected in each respective city. The disease appears, in a great measure, confined to the humbler classes; so much so, that we find Clarendon saying, the disease had acquired the name of “the poor man’s plague.”

One of the boys was attacked two days afterwards, and in one or two days more, twenty others. Two cases terminated fatally, and the medical gentlemen attending, were quite satisfied that the effluvia from the putrid matter had caused the disease.\*

4th.—That fever frequently arises amid the accumulation of filth and animal exhalations in the crowded dwellings of the poor, in our manufacturing towns—in the confined alleys of the Metropolis, and also in villages where such causes exist; that the circumstances which contribute, not only to the frequency, but also to the malignity of fever, operate by increasing the predisposition, or by rendering the body more susceptible to the influence of the various exciting causes.

5th.—That when fever arises in any of these over crowded, and badly ventilated dwellings, found almost without exception in every town in England, the causes already mentioned, tend most materially to multiply the number of persons attacked; for the virulence of the poison, in a confined atmosphere, in time becomes so much increased, and concentrated, as almost to render escape from fever impossible, by any person exposed to its influence. This is the case in ships, prisons, workhouses, over-crowded hospitals, and the close dwellings of the poor; wherever no attention is paid to ventilation, there the essence of human effluvia produces its certain and ever fatal effects. Few parish workhouses in summer, if over-crowded with paupers, escape the ravages of fever, and if an epidemic makes its appearance in a large town, it is certain to commence in, and almost entirely confine its ravages to that part of it which contains the crowded, ill-ventilated houses of the labouring classes. †

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\* See Searle on Cholera, and Orton, p. 415.

† Dr. John Hunter years ago furnished the following finished picture of the effects of fever arising from decomposed human effluvia accumulated in a camp, a ship, or even a large private family—it is sketched from life, and cannot be mistaken. “A poor family, consisting of the husband, the wife, and one or more children, were lodged in a small apartment, not exceeding twelve or fourteen feet in length, and as much in breadth. The support of them depended on the industry and daily labour of the husband, who, with difficulty, could earn enough to purchase food necessary for their existence; without being able to provide sufficient clothing or fuel against the inclemencies of the season. In order, therefore, to defend themselves against the cold of the

6th.—That the contagion of fever may be dissipated with the greatest possible ease, by removing every case of fever as soon as it arises in a confined locality to an hospital in which the wards are well ventilated. “It is wonderful,” says Dr. ELLIOTSON, “how small dilution of the atmosphere around the patient will prevent it from being communicated to any one.”\* After the removal of the patient to the hospital, the house, bed clothes, and every thing with which the patient could possibly have come in contact, ought to be exposed to the action of fresh air, and the application of those powerful means at our disposal for the disinfecting of dwellings. “Of all circumstances which influence the spread of contagious disorders,” says Dr. BROWN, “the most distinctly ascertained are atmospheric impurities, \* \* every disease possessing the property of remote contagion, is propagated to greater distances in a dirty, crowded, and ill-ventilated apartment,

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winter, their small apartment was closely shut up, and the air excluded by every possible means. They did not remain long in this situation before the air became so vitiated as to affect their health, and produce a fever in some one of the miserable family. The fever was not violent at first, but generally crept on gradually; and the sickness of one of the family became an additional reason for still more effectually excluding the fresh air; and was also a means of keeping a greater proportion of the family in the apartment during the day-time; for the sick person was necessarily confined, and another as a nurse. Soon after the first, a second was seized with the fever; and, in a few days more, the whole family perhaps were attacked, one after another, with the same distemper. I have oftener than once seen four of a family ill at one time, and sometimes all lying on the same bed. The fever appeared sooner or later, as the winter was more or less inclement; as the family was greater or smaller; as they were worse or better provided with clothes for their persons and beds, and with fuel; and as their apartment was more or less confined.” [This family multiplied by numbers, presents us with a true description of what is existing at present in London, and which will exist so long as the present system continues.]

[For additional information consult the Cyclopædia of Practical Medicine, Art. Fever—Mason Good’s Practice of Physic, by Cooper—Dr. Elliotson’s Practice of Physic—Dublin Hospital Reports—Dr. Marsh on the Origin of Fever—Letter of Dr. Haygarth to Dr. Percival on the Prevention of Infectious Fevers—&c. &c. &c.]

\* The same fact is noticed by Dr. Clark, in the Report of the Committee of the Newcastle Dispensary, 1842.

than one in which the air is pure, whilst diffused through an atmosphere of the latter description, it is speedily deprived of its noxious properties—the neglect of cleanliness implies the multiplication of foci of contagion.” A great number of facts might be added leading to the conclusion that the contagious fever of this country, and other diseases are not only propagated by overcrowding, filth, and imperfect ventilation, but even created by them. We know that some slight difference of opinion exists on this point, but we have so often seen fever in certain seasons, not traceable to any other source, suddenly appearing in the abodes of the labouring classes, apparently produced by the concentration of human effluvia, and the decomposition of animal and vegetable recrements, that it has been almost impossible to conclude it has not actually been engendered by them. One thing must be remembered, in considering the effects of fever, that its virulence increases in strength, not in a numerical, but rather in a geometrical proportion, to the number by which it is fed; so that if ten persons produce a given amount of pestilence, twenty will not produce twice as much, but nearly two hundred times as much; we may, therefore, form some notion of the fearful effects of the fever scourge, when inflicting its cruel ravages upon a people, closely packed together, incapable of flying from its influences, and obliged to remain in dwellings in which want of fresh air, daily enables the poison to increase in intensity, to add to the number of those attacked, and consequently to render the calamity heavier.

It remains only to consider, 1st—The reasons from which the conclusion has been drawn, that on the carrying out of proper sanitary measures, the mortality of this country would be considerably decreased, and 2ndly—What ought to be the leading clauses of any measure seeking to improve the health of towns.

The following facts cannot fail to establish our first position; that we have at our disposal the means by which considerably to decrease the mortality of this country.

“I can, says Dr. Alison,\* point out one hundred houses where only one case of fever has occurred, where the patient has speedily been recovered, and the place cleaned,” [disinfected,] but we cannot find five houses, in all the closes of the old town of Edinburgh, in which a patient, in fever, has lain

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\* On Epidemic Fever, Edin. Med. and Surg. Journal, vol. xxviii, p. 241.

during the whole, or even half of his disease, in which other cases of the disease have not shown themselves."

The improved health of prisoners, now, as compared with their condition at the period when the philanthropic Howard visited them, prove the advantages of sanitary reforms; their condition in that day being somewhat similar to the crowded neighbourhoods in which the poor now reside.\* No less satisfactory is the present condition of the British Navy as compared with days long passed. In 1726, in sailing to the West Indies, Admiral Hosier twice buried his ship's company, Dr. Wilson states, † "within the limits of the South American command, the Centurion lost, a century ago, 200 out of every 400 men employed, from scurvy; from 1830 to 1836, the British squadron employed in South America, lost by disease of every description, 115 out of 17,254 men." The following table shows the progressive improvement of the health of the navy, the result of better sanitary regulations.

DEATHS IN THE BRITISH NAVY.		
1779, .....	1 in 8	} employed.
1811, .....	1 in 32	
1830 to 1836, .....	1 in 72	

The following case which occurred in a rural district not before published, and which was related to us by a son of the gentleman who occupies the farm, forcibly illustrates the origin of typhus, and the means by which its recurrence may be prevented. Mr. PAYNE, now of Hawsted Place, in the County of Suffolk, became the tenant of a farm called "Depden Elms." After a short residence in the farm-house, both Mr. PAYNE and his son were attacked by a very severe form of typhus fever, from which, how-

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\* Various authors give an account of what took place during the "Black Assizes at Oxford," during the reign of Queen Elizabeth, in 1577. It appears some prisoners, who had been confined in dungeons, unfit for beasts, were brought into court for trial. A strong stench arose from the prisoners, who were exceedingly dirty. Some of the Judges and Magistrates, the Sheriff and most of the jury were taken ill and died in a few days, that night 600 persons were attacked, in the next three days, 300 more sickened, and 510 died in the course of five weeks. In 1750 at the Old Bailey several persons were taken ill after the prisoners, subsequent to close confinement, had been brought into court. See Ward's History of Oxford.

† Preface to the Medical Reports.

ever, they both happily recovered. The two previous tenants had, after a short residence in the same house, been carried off by the same kind of fever. This recurrence of so many cases of fever in the same place induced a strict investigation of the causes which led to it, and a stagnant and very offensive pond, near the house, having been filled up, no other case of fever has occurred in the house since. The pond was filled up many years ago.

With one or two most important facts, showing the beneficial results which have followed the carrying out of even a partially improved sanitary system, the present portion of our subject must be left.

REPORT OF MR. HOLLAND, OF MANCHESTER.

“In 20 streets in Chorlton on Medlock, after the streets had been properly paved and drained, the mortality fell from 110 to 89 per annum.” Mr. Noble and Mr. Gardener state also, that in St. George’s District, Manchester, in 1841 and 1842 after the streets had been paved and drained the deaths were 432; in 1838 and 1839 they amounted to 495.

EVIDENCE OF MR. LIDDLE BEFORE THE HEALTH OF TOWNS  
COMMISSION.

“Windmill Court, Rosemary Lane, was one of the most unhealthy in my district. It was unpaved and filthy, with stagnant water before the houses; I used to be called, two or three times a day, to fever cases; about twelve months ago it was flagged and well supplied with water, from a large cast iron tank, which enabled the inhabitants to have a constant supply instead of an intermittent one, three days a week. The court is regularly washed down three days a week, and the drains are so laid, that all the water passes through the privy and carries off the soil which was formerly a most foul nuisance, and a constant expense to the landlord. In the seven months, ending March, 1843, I attended 47 cases of fever, in that court; in the last four or five months, I have had but two cases.” These facts fully prove the advantages of sanitary measures, and lead us with full confidence to anticipate the good that will arise when they are extended to the whole kingdom. It is highly creditable to the inhabitants of Manchester, Liverpool, and other large towns, to make those improvements; still the principle is not free from objections; sanitary reforms can never efficiently be carried out by individuals, or by companies trading for their own gain; the only remedy that will reach the

roots of all this upas tree of evil, is an efficient sanitary measure, and the permanent appointment of proper officers to enforce and carry out its provisions.

It is with considerable diffidence we propose to point out what ought to be some of the clauses in a "Bill for the Improvement of the Health of Towns." We venture, however, from a reconsideration of the subject discussed, to suggest, that no measure would be perfect that did not provide—

I. That the provisions of the act shall extend, not only to every part of England and Wales, but to Scotland and Ireland, and to the special requirements of London, Dublin, and Edinburgh.

II. The appointment of Government Inspectors, and of Inspectors of Nuisances.

III. The removal of all nuisances from towns and villages, including the smoke nuisance in towns; and the manufactories of all substances tending to injure the health of the inhabitants.

IV. The appointment by the Secretary of State for the Home Department, for districts, of Officers of Health; the qualification required being that they shall be Fellows, Members, or Licentiates of the Royal Colleges of Physicians or Surgeons of London, Edinburgh, or Dublin; and that their whole time shall be devoted to the performance of the duties of this office, and that they shall not be allowed to attend to private practice.

V. The appointment of Local Commissioners to carry out the provisions of the Act.

VI. The establishment in London of a Central Superintending Authority in subordination to Her Majesty's Government, similar to the Poor Law Commissioners.

VII. To make provision for raising the necessary funds to carry out the important Sanitary Reforms required, in all their efficiency.

VIII. To provide that all the necessary sewers, and works required to carry out the provisions of this act, shall be executed by contract, upon open tenders; and the parties so tendering, to be bound in full and sufficient sureties, to duly execute the works for which they have contracted; and to maintain them in good and sufficient repair; and to continue to maintain them in full efficiency for years, at a certain sum annually.



IX. The providing the means whereby the proper ventilation of all houses may be effected; and the creation of a power which shall enable the Inspector of Nuisances to remove all houses which block up the ends of lanes, or courts, and prevent a free current of air from passing through them.\*

X. To provide for the burial of the dead beyond the walls of all towns and cities, by the formation of cemeteries, of an area proportionate to the number of inhabitants; and after the year—— to forbid the burial of any body in any church or church-yard, situate within the interior of any town or city containing more than——inhabitants. The owners or managers of such cemetery not to open any grave after a body has been interred until—— years have elapsed from the date of burial.†

XI. To forbid the making, under any circumstances or pretence whatever, of any cess-pool near any dwelling-house; the removal of all existing cess-pools and privies, so soon as proper drains and sewers shall have been constructed; and the water-closet apparatus rendered practicable. The removal of all dung heaps from before houses in towns, and pig-styes from the same crowded localities.

XII. The closing of all open drains near the houses of inhabitants, and the making of sufficiently large covered sewers in all towns and villages.

XIII. The removal to the outside of all towns of slaughter-houses. The removal of public cattle markets from the centre of towns to some convenient site beyond the suburbs.

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\* Some difficulty will arise in carrying out measures for the proper ventilation of the houses of the poor, as it would interrupt the privacy of domestic life—this argument has been allowed more weight than it appears entitled to, when the evils of improper ventilation are placed in the balance against it. Still, the argument cannot apply to buildings intended for public resort—Courts of Justice, Churches, Chapels, Theatres, Factories, Workshops, Schools, Lodging-houses. A clause compelling the efficient ventilation of all the above places is absolutely necessary in any sanitary measure that may become the law of the land; and without which it would be very incomplete.

† These blanks are left, as it is impossible, without great consideration, to decide how they shall be filled up; that public health, and the interests of society demand the removal of all places of burial, to a distance from towns, admits of no doubt.

XIV. All water companies in towns to be obliged to supply water in as pure a state as possible, to deliver it in all cases at the highest possible pressure; the water supplied to be always either filtered or previously exposed to a depositing bed sufficiently large; the supply of water to the inhabitants to be constant; and not on certain days only, as at present.

XV. Whatever may be required for the supply of water to towns—for the improvement of their drainage, sewerage, ventilation, cleansing, to be under one and the same central authority.

XVI. The local boards for carrying out the provision of this measure, to be elected in the same way as the local guardians under the poor-law union, and to be under similar control. There are other points which must doubtless occupy the attention of Government as to the manner in which the necessary funds are to be raised, in the first instance; and how to be supplied in years to come, which belong to the legislature, and not to the medical man, whose business is only with the causes tending to produce disease, and the necessity for their removal, therefore any observation on the other obvious provisions of the measure might justly be considered impertinent on our part. They have however been fully discussed by the Committee of the Health of Towns Association, in their report to the Members of the Association, and that report doubtless contains deeply interesting, and important considerations. One thing however is certain, that if a comprehensive measure of Sanitary Reform is enacted, it will confer one of the most inestimable of blessings on the community, blessings eye hath not seen, nor the mind of man conceived; how many are the objects such a measure must embrace!—in how many ways will it contribute to promote the health, the happiness, the comfort, the morality of the working classes. Its first object is to check the fearful mortality at present existing in towns, to endeavour to reduce the deaths from 1 in 28—to 1 in 50; by the removal of the various causes acting at present so injuriously on health and life—it must not only provide the machinery by which existing nuisances may be swept away, and their recurrence prevented, not only stop the folly orupidity of any man from building houses in alleys and lanes after the fashion of a cul-de-sac, where the infant's cradle is never lighted by the cheering sun-beam,

nor the mother's wan cheek fanned by the ventilating breeze; not only must the government measure remove the evils that exist, whether from the sewer, the cess-pool, or the reeking impurities always abounding near the miserable and badly ventilated abodes of the poor, in crowded neighbourhoods; but comforts hitherto unknown by the poor operative must be supplied; and what can tend more to prevent disease and promote health and comfort, than a constant and abundant supply of pure water—of water, not only for ablution, house cleaning, and sewerage (for water after all will be found the best Nightman and Scavenger that can possibly be employed) but for drinking and culinary purposes.

The expense to the public of carrying out a measure of sanitary reform has next to be considered.

COST TO THE PUBLIC OF CARRYING OUT A MEASURE OF SANITARY REFORM.

This is hardly a question that ought to be argued after a pounds, shillings, and pence fashion. With the melancholy fact before us, that thousands are swept off every year, by diseases capable of being prevented; the means of prevention, and not the cost, of so doing ought to be the first, and sole object of attention. It has been proved unquestionably that each year in England and Wales, at least 35,000 of our countrymen are borne to the grave by diseases arising from causes that are known, to be capable of removal. The reader has only to imagine this large mass for a moment before him \*—more than thirty-five thousand men, women, and children, in the vigour of life; and then let him recall to mind the awful fact that upon the health and strength—the lives of that vast multitude, causes are operating, that will so effectually produce a certain and inevitable result, that if he looks again upon the spot where that living mass is now placed before him, at the end of twelve short months, not one of them will be left; each and every one will have died!! We know not how better to exhibit the result of the mortality in England, than by calling the eye of the reader to such a multitude, and when he has gazed upon it, and considered the enormous mass; the large

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\* This calculation only applies to England and Wales, and would even be more fearful still were Ireland and Scotland added. It would then amount to at least 60,000.

extent of ground on which it is standing, to tell him the *established fact*, that yearly even a larger number of his countrymen is swept from the land of the living, and that too by causes, he, in common with every other Englishman, has the means of preventing, and is called upon to remove. Whilst we write, the evil is still existing, each month adds to the extent of it; the calamity is appalling; the gloomy fact, cheered only by the knowledge, that with the evil, there is happily a way of escape; a way to rescue the thousands who go yearly to the grave, over and above those who must die in the course of nature, by the carrying out of an efficient measure of Sanitary Reform. This is no question to be argued on the ground of the expenditure, that may be required—there is a rule that ought to be written on the heart of every one—the gospel rule of doing unto others as we would be done by—a rule which should induce an effort, on the part of the rich, and wealthy of the land, to make the condition of their poorer brethren, spiritual, moral, and material, as happy as their own. “If,” says Lord Ebrington, in his eloquent lecture,\* (the precepts contained in which, ought to be stereotyped on the heart of every man;) “we seek merely that which is expedient, no calculation or foresight will be sufficient to guard against error; shrewd calculators there have been enough in Liverpool, but all their shrewdness and calculation has not prevented the waste of hundreds of thousands on ill health. Had one half of that energy and thought been devoted to their duty to their neighbour, by that wealthy community, how much richer would they have been.” How truly, and how eloquently does this amiable nobleman inculcate that great lesson, “seek ye first the kingdom of God and his righteousness, and all these things shall be added unto you;” by how many circumstances are we reminded, daily, of the advantages of so doing.

Without admitting that the subject of expense ought to weigh one moment in the consideration of the Government, in carrying out measures, by which so great an amount of human life, may be preserved, we are prepared to show that a proper measure of Sanitary Reform, so far from proving an additional tax, will be a

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\* Delivered before the members of the Mechanics' Institute, Plymouth.

considerable saving to the nation; after all, the Fever-tax will be found the greatest incubus on the industry of the country; the greatest burden men have to bear. In considering this subject, it will not only be necessary to glance at the expense caused by medical attendance upon those who die of fever—by parochial relief to the widows and orphans thus left destitute; but also the cost of providing for the many cases of fever which recover, for the recoveries will under the most unfavourable circumstances always bear a considerable majority to the deaths. Nor is there the consolation, (if it is possible that any mind could derive consolation from such a source,) that the excessive mortality in certain districts, has the effect of reducing an excessive population, for just the contrary is the result, as proved by the elaborate calculation of M. Mallet, and M. Quetelet,\* and the researches of Mr. Chadwick. In Manchester where one-twenty-eighth of the whole population is annually swept away, the registered births amount to 1 in 26 of the population; in the county of Rutland where the proportion of deaths is 1 in 52 of the population, the proportion of births is 1 in 33.

The late Dr. Cowan in a calculation, which falls much under the actual amount, in order to prevent the possibility of a charge of exaggeration, shews how excessively heavy, the fever tax is on the inhabitants of Glasgow. “It is not,” says he, from the data before me, possible to give any thing like an accurate calculation, of the sums spent in Glasgow, for the treatment of fever, during the last twenty years; there is—

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\* M. Quetelet's enquiry, in various countries, prove, that a high rate of mortality is followed by an increase of births, more than sufficient to replace the deaths, however numerous. In the lowest districts of Manchester of 500 children born, at least 285 (more than half) will have died under five years of age. In some streets in Leeds, the mortality amongst infants is much the same—speaking of similar facts M. Mallet remarks, that they exhibit, “proofs of a population little advanced in civilization, ravaged by epidemics—a population in which the influences on infancy are murderous; but where the great mortality in infancy, is *more than compensated* by a very high degree of fecundity.” This is abundantly proved by the records of large towns, especially in past ages.

I. The Cost of the Fever Hospital.....	8,566
II. Of Temporary Hospitals.....	5,000
III. Of 21,691 Patients at 30s. each, treated } at the expense of the Infirmary..... }	32,536
	£46,102

To this must be added the expense of treating the poor in their own houses—the demands upon the poor rates for pauperism produced by fever; these demands extend not only to the support of the patient during the continuance of the disease; but also to the period that must elapse, before he can work again; to which must be added the difficulty that frequently arises when fit again for labour, at the end of his convalescence, of obtaining employment; and then it may safely be affirmed, that in every case of fever, the poor man will be at least seven or eight weeks dependent upon the poor rate or private charity, for his support: and in case of death, the parish funds have frequently to bear the additional tax of supporting a widow and several fatherless children.\* In the former part of this work it has already been shown that the disease from which the inhabitants of the crowded, filthy, and pestilential houses of our towns and cities, suffer in the greatest degree, is typhus fever; the effect of this on the pockets of the rate-payers is evident from the following statement of Dr. S. SMITH: In the district of St. George's, Southwark, out of 1,467 persons who received parochial relief, 1,276 are reported to have been ill of fever; in fact the whole, with the exception of 191. The Bethnal Green and Whitechapel Unions had to pay extra in one quarter, £619 19s. for fever cases, or at the rate of £2,467 16s. additional for the whole year; and in all the districts by far the greater number of applicants for parochial relief were compelled so to apply, in consequence of being ill from fever. Dr. LYON PLAYFAIR, whose very careful statements, made only after the most patient investigation, always carry with them a strong conviction of their truth, has calculated the loss and cost of all the preventible diseases, and deaths, occurring each year in Manchester, at

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\* The result of a very careful calculation shews that there are 27,000 cases of widowhood, and 100,000 cases of orphanage every year arising from preventible causes—what can shew more clearly the wickedness and folly of longer permitting the present system to continue?

little short of £1,000,000: the loss of Nottingham is estimated by Mr. HAWKSLEY at £300,000. Dr. PLAYFAIR'S accurate calculation will therefore place the loss and cost for London at more than *two millions and a half*,—for England and Wales it will be about *eleven millions*—for the United Kingdom at least TWENTY MILLIONS. Twenty millions annually, the cost of deaths and diseases that are proved capable of being prevented—this is a large sum; so large, that we are at first inclined to think the calculations, however elaborate, must be erroneous; and yet, we venture the opinion, that the loss is under, rather than over, estimated! Let us recall to mind the facts previously considered—the numbers who die every year—the numbers attacked with sickness to every death\*—loss of wages during sickness—medical attendance, nursing—support of widows and orphans—funeral expenses, &c., &c., &c.—and the reader has before him the means for making his own calculation, and he will soon find the loss and cost arising from diseases and deaths, which result from the present state of things, to exceed the sum of twenty millions annually, however large that sum, at first sight, may appear. In whatever aspect the subject is viewed, whether as regards the annual loss of life and health, arising from diseases resulting from the want of proper sanitary measures, or simply as a matter of cost, to the pocket of the rate payer, it will be seen, that whilst on the one hand, those who wish to retain any claim to the character of christians, are bound by the dictates of humanity—by the commands and precepts of our holy religion, not only to remember the awful condition of the poor; the misery, the wretchedness, the sickness, the deaths, that annually take place in this country, from causes man has it in his power to remove; but also most earnestly to assist the government in providing means by which these evils may be for ever eradicated; on the other, it is seen, that looking

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\* Dr. Playfair calculates that there are 28 cases of unnecessary sickness to each death. If, from the neglect of sanitary measures we have shewn that 35,000 unnecessary deaths take place each year in England and Wales, it follows on this calculation that there are 980,000 cases of preventible sickness—and if the number of deaths that might be avoided amount in the United Kingdom to 60,000, the cases of sickness which could be prevented will reach to a no less number than 1,680,000.

at the question in a pecuniary point of view, as one affecting the rate payer, whatever the cost of carrying out the necessary sanitary reforms, the public must be considerable gainers; for facts and figures—the most careful calculations go to prove—the greatest tax on property and income, arises from deaths and diseases, which an efficient cleansing and drainage of our cities, towns, and villages, would extinguish.

APPLICATION OF THE REFUSE OF TOWNS TO THE PURPOSES  
OF AGRICULTURE.

Having, as we hope, satisfactorily shown that the government is imperatively called upon to remove those causes which annually act so fearfully upon the lives of so many thousands; and that the cost to the country, arising from preventible deaths and cases of sickness, is greater than the expense of the necessary works required for removing the principal causes of fever—defective drainage, and sewerage; we have lastly to consider how this expense may be still further lessened by the application of the contents of sewers to the purposes of agriculture; and thus convert those sources of pestilence into mines of plenty;—a stream of water passing along a properly constructed sewer will not only carry away long concealed germs of pestilence, which at present lie buried in mountains of filth, but will convert the cause of pestilence into the proper food for plants; thus filling our fields with plenty, our garners with increase, and our poor with bread. It will hardly be necessary to draw attention to the well-known fact, that whatever is intended for the growth and nourishment of plants, can only be taken into their system in a fluid state. The most powerful manures are worthless in hot and dry seasons, and all solid manures are, in a great measure, dependent on the rain which follows, and carries them, more or less dissolved, to the roots of plants. The advantages of liquid manures have been proved by a variety of experiments; the wonderful results arising from their employment by Mr. DICKENSON, the horse-dealer, are given in the evidence of JAMES SMITH, Esq., of Deanston, before a committee of the House of Commons; the land to which the liquid manure was applied is a very poor clay—"wretched land, not drained,—I saw his Italian rye-grass that had already been cut four times in one season; he has kept upon four acres, as far as grass goes,



one hundred horses, during the whole of this season; the mixture is half urine and half water." Mr. SMITH gives evidence of what he saw resulting from the application of liquid manure on a farm at Glasgow, also; he says:—

"I may also mention another experiment made upon a farm at Glasgow, where the liquid manure was put over the land, and the growth has continued during the whole winter in a very remarkable way. No doubt the last season has been a remarkable season for grass everywhere; but notwithstanding that, this was distinguished before all the grass of the country round. I saw, about the 1st of December, forty-three Irish bullocks wading to the fetlocks in grass upon some of these fields, and eating it most greedily, while the fields upon the farms in the neighbourhood were perfectly bare. I have a report with regard to its progress this year, and the advance of the grass has been very remarkable throughout. The proprietor, although requiring the greater part of the grass for his own use, has let a part of it to see what it will bring. He has got for land he could not before have let for more than perhaps a couple of pounds, £8 this year. He considers it to be let very much below its value, so much so, that having given notice of a public sale, he stopped it, expecting, of course, to make more of it by keeping it himself. This person has also tried it upon some oats, and creditable persons who have inspected it agree in stating, that the superior growth of that part of the oat field dressed with this manure is very remarkable; the one is a full and fresh crop, and the other is very scanty and poor indeed."

The enormous value of the manure of towns may be estimated by reference to the opinions of many of the most able practical agriculturist, as well as the conclusions formed, after a very correct and careful examination of the question, by men of undoubted scientific attainments. Mr. SMITH has calculated the sewerage water per annum due to a town of 50,000 inhabitants at 1,190,080,946 gallons, which will be sufficient to manure 66,410 acres, and after making every deduction its value is stated by him at £45,241—he continues, "taking a general view of the subject, there will remain a clear revenue from the sewer water of all towns of £1 for each inhabitant."\* The value of town manure, is ably shewn by Dr. ARNOT, † who states that a portion of the drainage of Edinburgh, spread upon level lands towards the sea, has increased their value at least £5,000 a year."

Dr. PLAYFAIR states that in Flanders where much manure is used,

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\* Report of the Health of Towns Commission.

† Report on the Fevers of Glasgow.

“the collected excrements of a man are valued at £1 17s. a year,” and in the same country, the recent urine of a cow is, for the same period, estimated at 40s. “It contains, says Professor JOHNSON,” 900lbs. of solid matter, and this estimated at the price of guano only, is worth £4. Multiply this by 8 millions, the number of cattle said to exist in the United Kingdom, and we have £32,000,000 as the value of urine alone.” \*The celebrated Liebig gives the average weight for each individual per day, of solid and liquid fæces, at about 1½lbs—one-sixth solid, and one-fifth liquid: say one-fifth solid and four-fifths liquid, which will be steering a medium course between his opinion, and that of other chymists. If we take a town containing 30,000 inhabitants, it follows that 45,000lbs. of fæces are produced daily, of which about 9,000 are solid, and 36,000 fluid, the liquid it is said containing more than 5 per cent. of fertilizing matter, or 1,800 lbs. To this must be added the waste from the manure on roads, butchers, &c., &c., so that we may safely calculate, at least, the value of the manure of a town containing 30,000 inhabitants at considerably more than £1 each. We must however bear in mind that at present the sewerage water of towns is much less valuable, as a manure, than it will be, when we have a more perfect plan for collecting it. In the evidence given before the Health of Towns Commission, numerous additional proofs were offered of the increased value of land on the application of sewer water, Mr. SMITH remarking, “that the practical result of the application of sewer water is, *that land* which let formerly at 40s. to £6 per Scotch acre, is now let annually at from £30 to £40; and that sandy soil on the seashore, which might be worth 2s. 6d. per acre, lets at an annual rent of from £15 to £20. The average value of the land near the city, irrespective of the sewer water application, may be taken at £3 per imperial acre, and the average rent of the irrigated land at £30, making a difference of £27, but £2 may be deducted as the cost of management, leaving £25 per acre of clear annual income due to the sewer water,” and Mr. HAWKSLEY has given some most interesting calculations, in his evidence before the health of towns commission, [page 322] as to the cost of transmitting sewerage water, to a distance of five miles, and to a

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\* Agricultural Chymistry, p. 681.

height of 200 feet, including wear and tear of pumping machinery, fuel, labour, interest of capital invested in pipes, reservoirs, engines, &c.; this he estimates at  $2\frac{1}{2}$ d. per ton, and the cost of carting to the same distance 4s. per ton; “it is quite clear that a very great weight of liquid material may be moved by pumping, more cheaply than by any other known mode of conveyance,” and in the same report Mr. DEAN observes, that, “the expense of distributing the same quantities of manure irrespective of the different degrees of productiveness from the different modes of application, would be on the average, for distribution in the solid form £3, and in the liquid form, by irrigation about 6s.” Dr. GUY in a very able lecture, delivered before the Russell Institution, has very fully entered into the examination of the application of sewerage water, to the purposes of agriculture, and the reader will be amply repaid by a careful perusal of his little pamphlet; he proceeds to consider the two methods proposed for applying to agricultural purposes, the filth of towns; the one collects the solid, the other the liquid manure. To collect the manure in a solid form is open to many objections; the first of which is that under such a system the health of towns could not be improved, so fully, as by the other; it would also cause much additional expense, and the settling ponds would only be the creation in every town in the kingdom on an extensive scale of the nuisances of Edinburgh and Paris; in a word the liquid plan may be carried out with less expense;—liquid manure is of the greatest possible value, and it creates no nuisance; on the contrary, it is the best possible means by which nuisances may be removed, and as Dr. GUY observes “it will be much easier to graft a mode of collecting, and using the solid contents of the sewer water on the original plan of distributing the liquid manure, than it could possibly be, to add the distribution of the liquid to the plan of using only the solid contents of the sewers,” and he proposes an ingenious plan for so doing.

It has long been a favorite theme, with a certain class, that the population of our country is increasing faster than the supply of food; let us rather say, *faster than the supply raised by the means hitherto employed*. But, let faith in an all-wise Providence give us courage—let us hope that a means has at length been

discovered, by which those influences which hitherto have acted so fearfully upon the health and lives of thousands may be removed, and turned into the means of rendering our fields far more productive of food than before. And if this plan for cleansing our towns is carried out efficiently, and the collected manures properly applied, the corn fields of the world will yet yield bread sufficient for the supply of the human family; for man has not to fear that the means given for feeding the people by God, are insufficient, however inadequate the means he has hitherto employed may have been, to render them to the full extent productive. But our present object is two-fold, and we have every confidence that a proper measure of sanitary reform, will not only prove “a saving health among all nations,” but also the means by which “the earth shall bring forth her increase, and God, even our own God, will give us his blessing.” These advantages surely will not be confined to England only; Scotland has similar claims upon the energies of the government, and Ireland—wretched, miserable Ireland, exposed to every possible misery; accumulated filth, disease, pestilence, death, famine—utters a cry for help, and for bread, that cannot be resisted—may the causes of those evils be removed, and at the same time, may her fields also be rendered more fruitful. Ireland and Scotland cannot, must not, be excluded from the benefits of the provisions of the Health of Towns Bill. \*

It is satisfactory therefore, to know that an immediate attempt will be made to extinguish the sources of those diseases, by which so many thousands of our fellow creatures are yearly forced into premature graves. We know that the members of the present

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\* When Rome had 1,000,000 inhabitants, the supply of water, is stated, in the *Mechanics' Magazine*, to have been 50,000,000 cubic feet; or about 50 cubic feet for each; just 20 times the amount for each individual at present in London. How miserable the present supply of water for this mighty city of more than 2,000,000; what a reflection on our civilization! the more so when we call to mind the strata on which London stands, and the appliances of modern art, which could command for the metropolis any quantity of the best and most pure water; the writer, in this publication, happily observes—“the rock only requires smiting, to make it gush forth—in boundless supplies of the best possible water.”

government, in common with the leading men of all parties in both Houses of Parliament, are ready to enter into an examination of the causes affecting the Health of Towns, with a view to their prevention, in obedience to the gracious command expressed by Her Majesty, in her speech. The awful sacrifice of life, and the evils arising from the present condition of our cities, towns, and villages, notwithstanding the ignorance, which even yet prevails, with the majority of men, respecting them, have, nevertheless, forced themselves upon the attention of the state, and are now speaking in a voice that cannot much longer be disregarded. And, if in common with other labourers in this great field for improvement, by making more generally known the effects of these evils, one universal cry is raised throughout the land for their removal, our efforts will not have been in vain; and what theme can be more glorious, what greater labour of love can command the energies of man, than an endeavour to solve that all-important problem:—*How can we make the largest number happy?*

We are well aware that difference of opinion will still exist as to the best means by which to effect those all-important changes, these absolutely necessary sanitary reforms. Still, at this truly happy moment, “a change” appears to have “come o’er the spirit of our dream,” the country is no longer partisan—at any rate much less so than before. And if there be any question, on which all men may meet on neutral ground, it is such a one as this. And yet we are again reminded of this fearful truth; of the appalling fact elicited by the enquiries of the Poor Law Commissioners, at least five years ago—“*The annual slaughter in England and Wales from preventible causes of typhus which attacks persons in the vigour of life, appears to be double the amount of what was suffered by the allied armies at the battle of Waterloo.*” What steps have been taken since that discovery to arrest this fever? few or none; the same causes exist, the same sources of disease, crime, misery, and death. Once more let the importance of this subject speak to us—let all other measures, secondary to it, pass from the mind—thousands of our countrymen are dying annually—are yearly murdered, from the want of proper sanitary regulations—hurried to untimely graves, by causes

that might, years ago, have been removed. This is a subject indeed worthy every attention—the attention of every sect, and every party—and every human form that wears a heart.

It is not without feelings of anxiety that these pages are placed before the public; not so much on our own account, as from the fear, that the principles we have earnestly sought to establish, may have been injured, by feeble, and inefficient advocacy; still those fears do not altogether check the aspirations of hope; because, whatever directs public attention, to the existing state of society,—to the miserable condition of thousands of our fellow creatures,—to the ravages caused by the numberless deaths, and cases of sickness, arising from causes, which can be prevented, has an immediate, and certain tendency, to point out the means by which these social evils may be destroyed; the more so, when it becomes known that the sources of pestilence, may be converted into streams of plenty. Under this conviction we lay down our pen, with the most fervent prayer, that at no distant period, the anticipation of hope's own bard may be fulfilled—

“Come bright improvement, on the car of time,  
And rule the spacious world from clime to clime;  
Thy hand-maid arts shall every wild explore,  
Trace every wave, and culture every shore.”

THE END.



